

HABITAT CONSERVATION PLAN BIOLOGICAL MONITORING PROGRAM San Marcos Springs/River Aquatic Ecosystem

ANNUAL REPORT

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Prepared for:

Edwards Aquifer Authority
900 East Quincy
San Antonio, Texas 78215

Prepared by:

BIO-WEST, Inc.
1405 United Drive, Ste. 111
San Marcos, Texas 78666



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EXECUTIVE SUMMARY

The Edwards Aquifer Habitat Conservation Plan (EAHCP) Biological Monitoring Program continued to track biota and habitat conditions of the San Marcos Springs/River ecosystem in 2025 through monitoring activities outlined in this report. Monitoring in the San Marcos system consisted of routine surveys specific to three EAHCP Covered Species: fountain darter (*Etheostoma fonticola*), Texas wild-rice (*Zizania texana*), and San Marcos salamander (*Eurycea nana*). Community-level monitoring data were also collected on aquatic vegetation, fish, and benthic macroinvertebrates. In addition, reduced river discharge triggered Critical Period and species-specific low-flow sampling events which continued from January through the remainder of the year. The 2025 biological monitoring results provide valuable data to further assess spatiotemporal trends of aquatic biota in the San Marcos Springs/River ecosystem, as well as an opportunity to better understand ecological responses to low-flow conditions sustained for four consecutive years.

In 2025, extreme drought conditions with low precipitation and higher than normal ambient temperatures continued throughout central Texas, including the San Marcos Springs/River system. Low-flow conditions persisted the entirety of the year. Median annual mean daily discharge was lower in 2025 (88 cfs) than in 2024 (112 cfs) but similar to 2023 (88 cfs). Discharge in 2025 was lower than previous low-flow monitoring events in 2006 (116 cfs), 2009 (96 cfs), 2011 (117 cfs), and 2022 (119 cfs). Flows were approximately 80 cfs in January, triggering full system Texas wild-rice mapping and physical measurements. The routine comprehensive spring sampling event was coupled with an 85 cfs Critical Period event. A second low-flow vegetation mapping event occurred in June as flow remained at similar levels. Precipitation events in June and July increased discharge to slightly above long-term 10th percentile conditions. Fountain darter dip-netting was conducted in July and August. By October, flows were near 10th percentile conditions again and the flow during the routine fall comprehensive sampling effort was approximately 87 cfs.

Across seasons in 2025, total aquatic vegetation coverage increased slightly from spring to fall at Spring Lake Dam and I-35 and decreased slightly at City Park. Texas wild-rice full system total coverage was similar in the January low-flow and summer events in 2025, and both were greater than the 2024 summer coverage. Although terrestrial vegetation displaced Texas wild-rice in dewatered or shallow areas (most notably at Sewell Park and I-35), deeper areas in other parts of the river provided refugia for Texas wild-rice to persist and expand. Overall, full system coverage continues at much greater than pre-EAHCP levels despite low-flow conditions sustained over the past four years. Continued monitoring of Texas wild-rice will provide further insight into the species response to the ongoing drought.

The low-flow conditions experienced throughout 2025 appeared to have enhanced suitable fountain darter habitat in portions the San Marcos River by allowing complex vegetation types adapted to low-velocity environments to expand. Like 2024, the combination of increased *Cabomba* coverage in City Park and the presence of non-rooted bryophytes intermixed with other vegetation taxa contributed to higher fountain darter density estimates within habitats sampled by drop-netting in 2025. Additionally, fountain darter recruitment was highest in spring following the reproductive season peak. However, in 2025, recruitment in summer and fall increased from previous years with summer recruitment meaningfully higher than expectations

from previous data. Despite increases in density and recruitment within highly suitable habitat patches, expansion of Texas wild-rice in recent years has contributed to a decline in the percentage of vegetated areas occupied by fountain darters within study reaches. Collectively, these results suggest that although the overall amount of highly suitable habitat has declined in recent years due to Texas wild-rice expansion, improved recruitment and increasing densities has occurred within the patches of highly suitable habitat that are available.

Water temperatures remained consistent in spring areas but were elevated relative to typical years in downstream areas. The fountain darter larval production threshold (25 °C) was exceeded from Spring Lake Dam to stations farther downstream, beginning as early as May and continuing through September. Exceedance occurred a similar amount at Spring Lake Dam but less frequently at City Park in 2025 compared to the previous four years, though threshold exceedance at stations from Rio Vista Park downstream were more frequent in 2025 than previous years. Temperatures were warmest and exceeded the larval production threshold most often in June and August. Despite multiple years in which elevated water temperatures occurred more frequently, seasonal assessments from fountain darter drop-net data indicated either similar densities to the historical medians or increased densities. This could suggest that exceedance of these laboratory-derived temperature thresholds may not be a strong predictor of wild fountain darter population performance. However, the health and condition of individual fountain darters was not analyzed, and application of laboratory-derived temperature thresholds to wild populations is nuanced. For example, although McDonald et al. (2007) varied temperature in laboratory trials, those temperature fluctuations do not necessarily match natural diel patterns observed in the wild. Given availability of a tremendous amount of water temperature data in these systems, additional research is needed to evaluate the influence of naturally occurring diel temperature fluctuations on wild fountain darter population dynamics while accounting for variation in habitat quality and quantity.

San Marcos salamander densities were higher than expected in spring and fall at Hotel and in spring at Riverbed. Only Spring Lake Dam showed lower densities in 2025 compared to previous years. Lower densities at Spring Lake Dam in 2025 are likely attributed to expansion of Texas wild-rice; however, additional monitoring is needed to examine future trends. At a community scale, fish and macroinvertebrate community-level responses to low flows were not readily apparent. In general, no long-term temporal trends in overall or spring-associated fish diversity, richness, and relative density are evident from fish community monitoring data. Macroinvertebrate Index of Biotic Integrity (IBI) scores were generally consistent with past years. That said, fish community and macroinvertebrate bioassessments revealed a healthy riverine community with a diversity of taxa similar to previous years.

Biological monitoring throughout 2025 provided insights into the current condition of the EAHCP Covered Species in the San Marcos Springs/River, as well as flow-ecology relationships of the broader aquatic community. While 2023 and 2025 represented the lowest flow conditions observed since 1956 with similar conditions occurring in the last quarter of 2024, results from 2025 suggest continued resilience of aquatic communities and Covered Species populations to the sustained low-flow conditions observed. Subsequent monitoring efforts will provide opportunities to better understand the dynamics of this complex ecological system and further examine responses to varying hydrologic conditions.

INTRODUCTION

The Edwards Aquifer Habitat Conservation Plan (EAHCP) was established in 2012 and supports the issuance of an Incidental Take Permit that allows the “incidental take” of threatened and endangered species (i.e., Covered Species) (Table 1) from otherwise lawful activities in the San Marcos Springs/River. Section 6.3.1 of the HCP established a continuation of biological monitoring in the San Marcos Springs/River. This biological monitoring program was first established in 2000 (formerly known as the Edwards Aquifer Authority [EAA] Variable Flow Study) and its original purpose was to evaluate the effects of variable flow on the biological resources, with an emphasis on threatened and endangered species. However, the utility of the HCP biological monitoring program has surpassed its initial purpose (EAHCP 2012), and biological data collected now serves as the foundation for several underlying sections in the HCP including the determination of annual incidental take and supporting core adaptive-management activities for triggered monitoring and adaptive-management response actions. As the HCP proceeds, biological monitoring program data, in conjunction with other available information, are essential to adaptive management and will continue to help assess the effectiveness and efficiency of certain HCP mitigation and restoration activities conducted in the San Marcos Springs/River.

Table 1. Covered Species directly sampled for under the Edwards Aquifer Habitat Conservation Plan in the San Marcos Springs/River ecosystem.

SCIENTIFIC NAME	COMMON NAME	ESA STATUS
Plants <i>Zizania texana</i>	Texas wild-rice	Endangered
Amphibians <i>Eurycea nana</i>	San Marcos salamander	Threatened
Fish <i>Etheostoma fonticola</i>	fountain darter	Endangered

This report provides the methodology and results for biological monitoring activities conducted in 2025 within the San Marcos Springs/River ecosystem. In addition to routine monitoring, Critical Period and species-specific low-flow sampling was triggered. The results include summaries of current physiochemical conditions, as well as current conditions of floral and faunal communities, all of which encompasses both routine and low-flow sampling. For all aquatic organisms, historic observations (BIO-WEST 2001–2024) are also used to provide context to current conditions.

METHODS

Study Location

The upper San Marcos River (San Marcos, Hays County, Texas) is fed by the Edwards Aquifer and originates at a series of spring upwellings in Spring Lake, which was impounded in the mid-1800s (Bousman and Nickels 2003). From the headwaters, the river flows about eight kilometers (km) before its confluence with the Blanco River, traversing two additional impoundments, Rio Vista Dam and Capes Dam. The upper San Marcos River watershed is dominated by urban landcover and is subjected to recreational use. Spring inputs from the Edwards Aquifer provide stable physiochemical conditions, and springflow conditions are dictated by aquifer recharge and human water use (Sung and Li 2010). The upper San Marcos River maintains diverse assemblages of floral and faunal communities (Bowles and Arsuffi 1993; Owens et al. 2001) that include multiple endemic organisms.

Sampling Strategy

Based on the long-term biological goals (LTBGs) and management objectives outlined in the HCP, study areas were established to conduct long-term monitoring and quantify population trends of the Covered Species (EAHCP 2012). The sampling locations selected are designed to cover the entire extent of Covered Species habitats, but they also allow for holistic ecological interpretation while maximizing resources (Figures 1–3). Comprehensive sampling within the established study area varies temporally and spatially among Covered Species. The current sampling strategy includes five spatial resolutions:

1. System-wide sampling
 - a. Texas wild-rice mapping: 1 event/year (summer)
 - b. Aquatic vegetation mapping: 5-year intervals (spring)
2. Select longitudinal locations
 - a. Water temperature: assessed year-round at permanent monitoring stations
3. Reach sampling
 - a. Aquatic vegetation mapping: 2 events/year (spring, fall)
 - b. Fountain darter drop-net sampling: 2 events/year (spring, fall)
 - c. Fountain darter random-station dip-net surveys: 3 events/year (spring, summer, fall)
4. Springs Sampling
 - a. San Marcos salamander surveys: 2 events/year (spring, fall)
5. River section/segment
 - a. Fountain darter timed dip-net surveys: 3 events/year (spring, summer, fall)
 - b. Fish community surveys: 2 events/year (spring, fall)
 - c. Macroinvertebrate community sampling: 2 events/year (spring, fall)

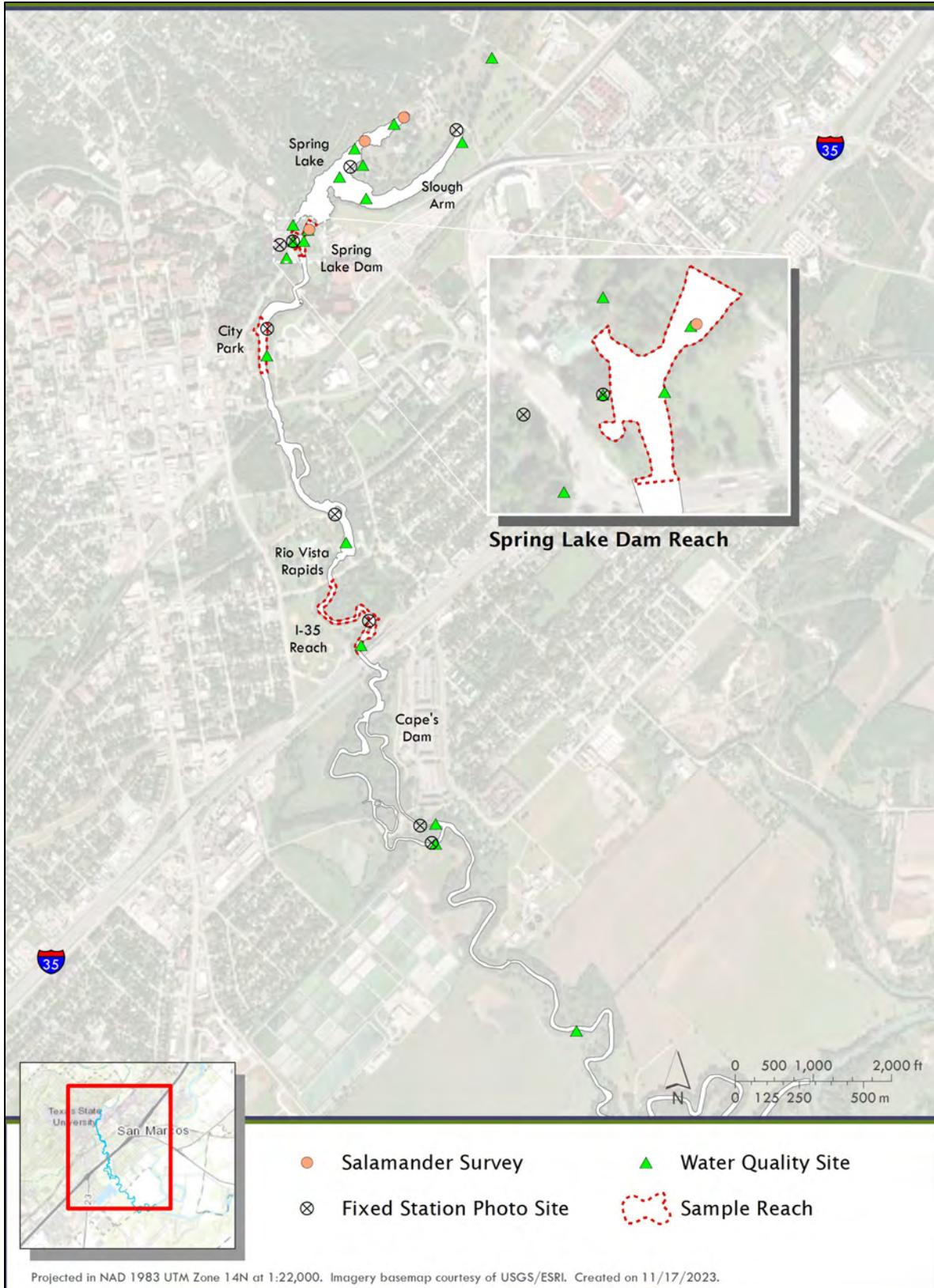


Figure 1. Upper San Marcos River sample reaches, San Marcos salamander survey sites, water quality sampling sites, and fixed-station photography sites.

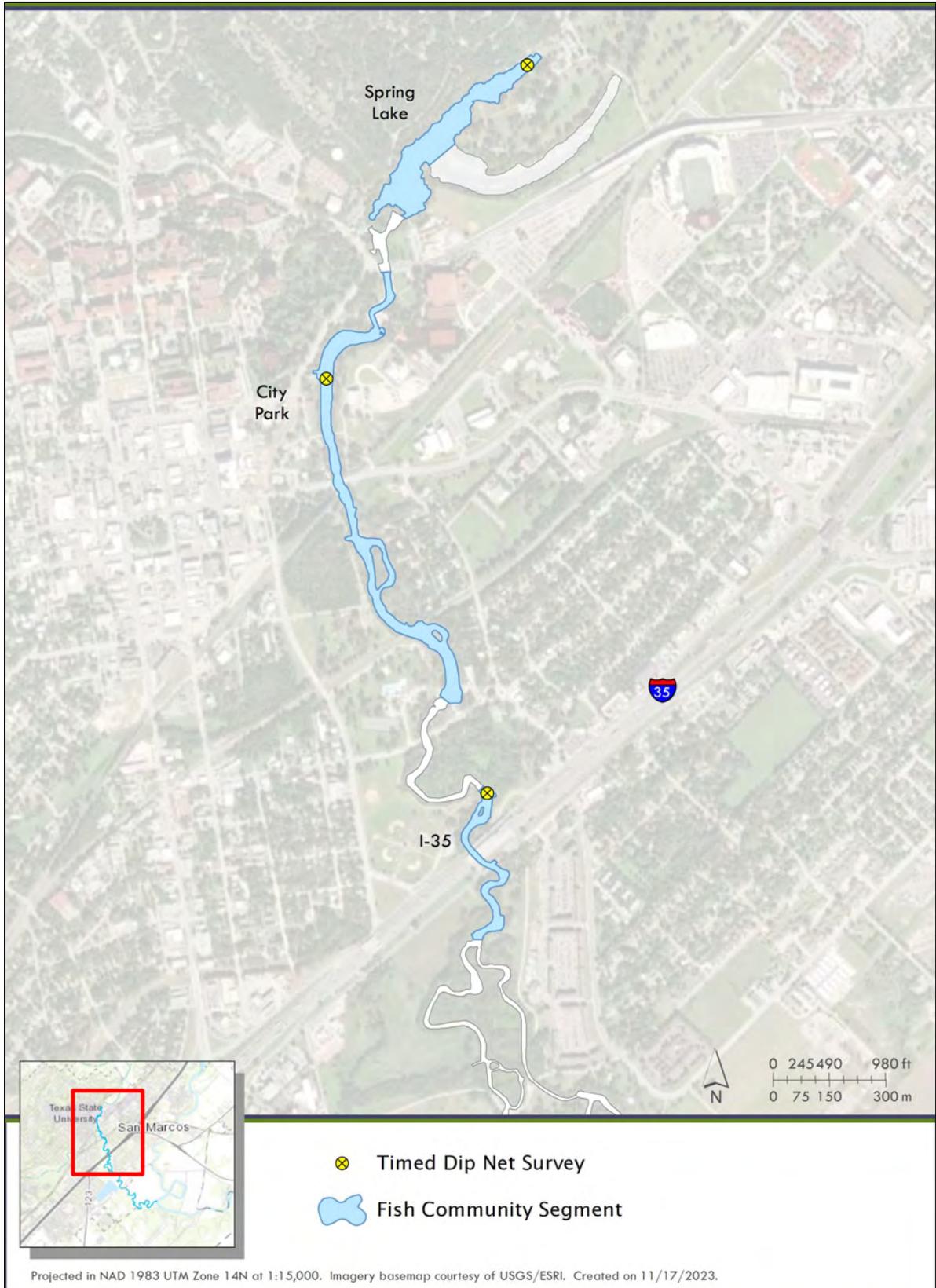


Figure 2. Fish community sampling segments and dip-net timed survey sections for the upper San Marcos River.

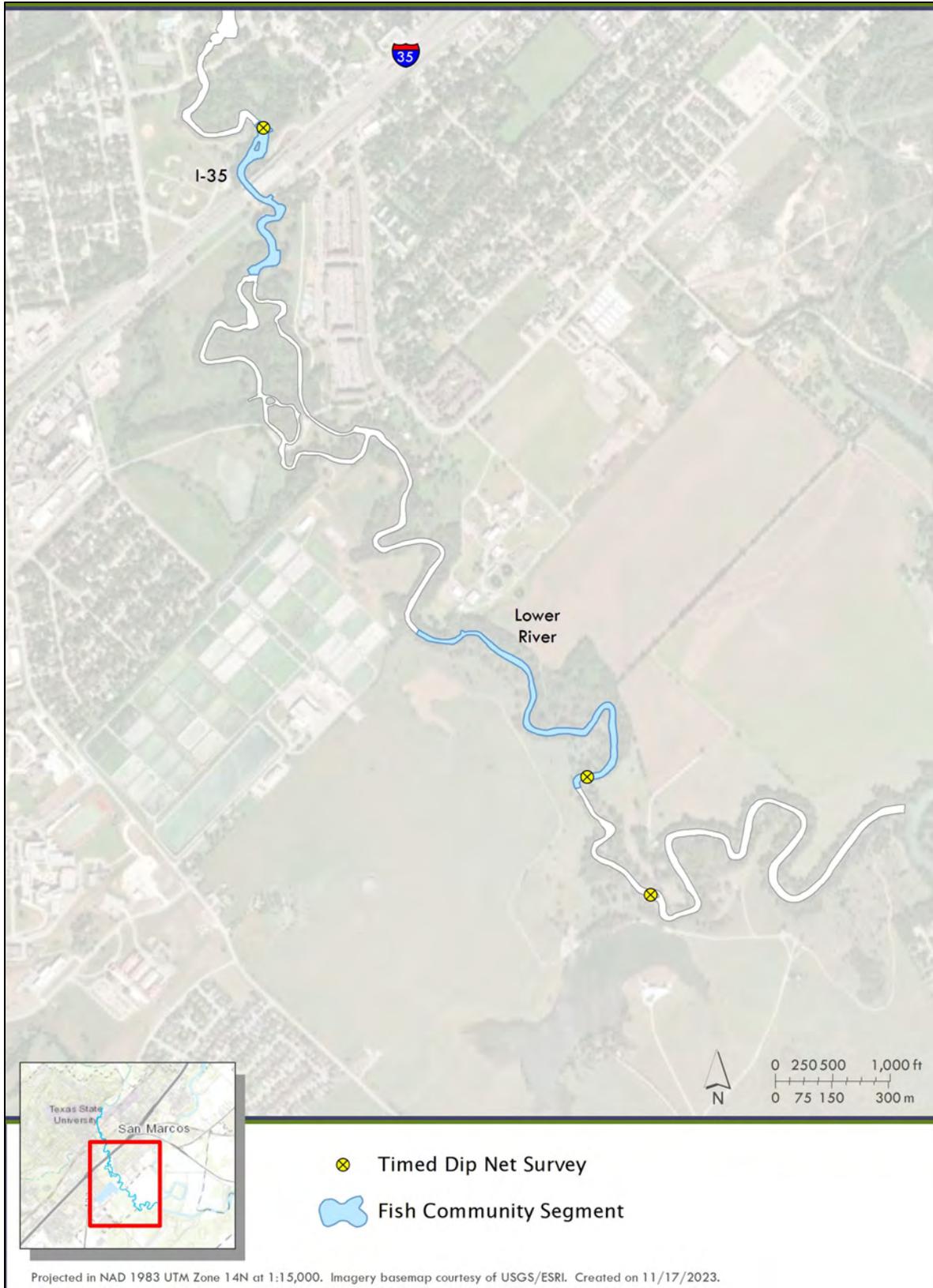


Figure 3. Fish community sampling segments and dip-net survey sections for the lower San Marcos River.

In addition to annual comprehensive sampling outlined above, low-flow sampling may also be conducted, but is dependent on HCP flow triggers, which include Critical Period low-flow sampling and species-specific sampling (EAHCP 2012). Due to decreased flows, one Critical Period monitoring event (< 85 cfs) was triggered and coupled with routine spring monitoring in April. Critical Period water grab sampling results are presented in Appendix B. Several species-specific Texas wild-rice physical measurements were triggered in January, continued through June, and were then conducted again in October. As total system discharge decreased below 120 cfs, the river was evaluated at approximately 5 cfs intervals to monitor low-flow habitat conditions. In addition, thermistors were downloaded at regular intervals to monitor temperatures as flows declined.

The remaining methods sections provide brief descriptions of the procedures utilized for comprehensive routine, Critical Period, and species-specific sampling efforts. A more-detailed description of the gear types used, methodologies employed, and specific GPS coordinates can be found in the Standard Operating Procedures Manual for the HCP biological monitoring program for the San Marcos Springs/River ecosystem (EAA 2017).

San Marcos River Discharge

River hydrology in 2025 was assessed using U.S. Geological Survey (USGS) stream gage data from January 1 through October 31. Mean daily discharge expressed in cubic feet per second (cfs) was acquired from USGS gage #08170500, which represents cumulative river discharge that encompasses springflow and local runoff contributions from the Sink Creek drainage. It should be noted that some of these data are provisional and are subject to revision at a later date (USGS 2025). The annual distribution of mean daily discharge was compared for the past 5 years using boxplots. The distribution of 2025 mean daily discharge was also summarized by month using boxplots. Monthly discharge levels were compared with long-term (1956, 1994–present) 10th, 50th (i.e., median), and 90th percentiles.

Water Temperature

Spatiotemporal trends in water temperature (°C) were assessed using temperature data loggers (HOBO Tidbit v2 Temp Loggers) at the 11 permanent monitoring stations established in 2000. Data loggers recorded water temperature every 10 minutes and were downloaded at regular intervals. Prior to analysis, data processing was conducted to locate potential data logger errors per station by comparing time-series for the current year with previous years. Timeframes displaying temperatures that deviated substantially from historical data and didn't exhibit ecologically rational trends (e.g., discontinuities, ascending drift) were considered unreliable and omitted from the dataset. For analysis, the distribution of water temperatures for the current year was assessed among stations based on 4-hour intervals and summarized using boxplots. Data from the current year were also compared to their 5-year and long-term trends. Water temperatures were also compared with maximum optimal temperature requirements for fountain darter larval (≥ 25 °C) and egg (≥ 26 °C) production (McDonald et al. 2007). Further, 25 °C is also the designated water temperature threshold within the HCP fountain darter LTBG study reaches (Spring Lake Dam, City Park, I-35) (EAHCP 2012). In the case of stations that surpassed either water temperature threshold during the year, the general timeframes in which those exceedances occurred are discussed in the text.

Aquatic Vegetation

Mapping

The team used a kayak for visual observations to complete aquatic vegetation mapping in sample reaches during the spring low-flow/routine monitoring and fall routine monitoring events. A Trimble GPS unit and external Tempest antenna set on the bow of the kayak was used to collect high accuracy (10–60 centimeter [cm]) geospatial data. A data dictionary with pre-determined attributes was loaded into the GPS unit for data collection in the field. Discrete patch dimensions and the type and density of vegetation were recorded from the kayak. In some instances, an accompanying free diver was used to provide additional detail and to verify surface observations. The discreteness of an individual vegetation patch was determined by the dominant species located within the patch compared to surrounding vegetation. Once a patch of vegetation was visually delineated, the kayak was maneuvered around the perimeter of the vegetation patch to collect geospatial data with the GPS unit, thus creating a vegetation polygon. Attributes assigned to each polygon included species type and percent cover of each of the four most-dominant species. The type of substrate (silt, sand, gravel, cobble, organic) was identified if substrate was a dominant feature within the patch. Rooted aquatic vegetation, floating aquatic vegetation, bryophytes, and algae were mapped as separate features. Only aquatic vegetation patches 1 meter (m) in diameter or larger were mapped as polygons. However, all Texas wild-rice was recorded, with individual Texas wild-rice plants too small to delineate as polygons mapped as points instead.

Data Processing and Analysis

During data processing, Microsoft Pathfinder was used to correct spatial data and create shapefiles. Spatial data were projected using the Projected Coordinate System NAD 1983 Zone 14N. Post processing was conducted to clean polygon intersections, check for and correct errors, and calculate cover for individual discrete polygons as well as totals for all encountered aquatic plant species.

Vegetation types are described in the Results and Discussion sections by genus, except for Texas wild-rice for which the common name is used. Vegetation community composition among taxa are grouped by native vs. invasive taxa and compared for the last five years using stacked bar graphs. Total surface area of aquatic vegetation, measured in square meters (m²), is presented for each season using bar graphs and is compared with long-term averages (2001–present) from spring, fall, high-flow events, and low-flow events. Since the I-35 study reach was expanded in 2014, the long-term averages for this reach were calculated from 2014-2025 to exclude years prior to the reach expansion. High-flow and low-flow averages were calculated from Critical Period and species-specific events. These events are based on predetermined river discharge triggers (Appendix A), which result in additional mapping events to assess flow-related impacts to the vegetation community. All total coverages were calculated solely based on rooted plant taxa.

Texas Wild-Rice Annual Observations

Mapping and Physical Observations

In addition to aquatic vegetation mapping in the LTBG study reaches, Texas wild-rice was mapped within Spring Lake and eight river segments using the same methods described above during one low-flow event in January and routine summer mapping in August/September (Figure 4). Moreover, physical measurements were quantified during routine monitoring in spring and fall. Five additional sampling events occurred during species-specific events triggered in January (n = 1), February (n = 1), March (n = 1), May (n=1), and June (n = 1).



Figure 4. Designated river segments for monitoring Texas wild-rice coverage.

At the beginning of the initial sampling activities in 2000, Texas wild-rice stands throughout the San Marcos River were assessed and documented as being in “vulnerable” areas if they possessed one or more of the following characteristics: (1) occurred in shallow water (<0.5 feet); (2) revealed extreme root exposure because of substrate scouring; or (3) generally appeared to be in poor condition. The areal coverage of Texas wild-rice stands in vulnerable locations were determined in 2025 by GPS mapping (see Aquatic Vegetation Mapping for details) in most instances. However, areal coverage of some smaller stands was measured using a method originally developed by the Texas Parks and Wildlife Department (J. Poole, pers. comm.). To do this, maximum length and maximum width were measured. The length measurement was taken at the water surface parallel to streamflow and included the distance between the bases of the roots to the tip of the longest leaf. The width was measured at the widest point perpendicular to the stream current. Percent cover was then estimated within the rectangle formed from the maximum length and maximum width measurements. The total area of the rectangle was then multiplied by the percent cover to estimate the areal coverage for each small stand.

Data Processing and Analysis

Annual trends in total Texas wild-rice coverage (m²) within Spring Lake and all river segments are presented from 2001–present. The conditions of vulnerable Texas wild-rice stands were assessed by combining quantitative and qualitative observational measurements from the following metrics: (1) percent of stand that was emergent, (2) percent of emergent portions that were seeding, (3) percent of stand covered with vegetation mats or algae buildup, and (4) categorical estimation of root exposure. Water depth was measured in feet (ft) at the shallowest point in the Texas wild-rice stand and velocity in feet per second (ft/s) was measured at the upstream edge of each stand. All results from the physical observations and vulnerable stands monitoring can be found in Appendix D.

Fountain Darter

Drop-Net Sampling

Drop-net sampling was utilized to quantify fountain darter densities and habitat utilization during the spring and fall monitoring events at established sample reaches (Figure 1). Drop-net stations were selected using a random-stratified design. In each study reach, two sample stations per vegetation strata were randomly selected based on dominant aquatic vegetation (including open areas) mapped prior to sampling (see Aquatic Vegetation Mapping for details). At each sample station, all organisms were first trapped using a 2 m² drop-net. Organisms were then collected by sweeping a 1 m² dip-net along the river bottom within the drop-net. If no fish were collected after the first ten dip-net sweeps, the station was considered complete, and if fish were collected, an additional five sweeps were conducted. If any fountain darters were collected on sweep 15, additional sweeps were conducted until no fountain darters were collected.

Most fishes collected were identified to species and enumerated. Two morphologically similar species, Western Mosquitofish (*Gambusia affinis*) and Largespring Gambusia (*Gambusia geiseri*), which are known to hybridize, were classified by genus (*Gambusia* sp.). Larval and juvenile fishes too small to confidently identify to species in the field were also classified by genus. All fountain darters and the first 20 individuals of other fish taxa were measured (total length expressed in millimeters [mm]).

Physiochemical habitat data were collected at each drop-net location. Water depth (ft) and velocity (ft/s) data were collected at the upstream end of drop-net samples using a HACH FH90 flowmeter and adjustable wading rod. Water-velocity measurements were collected at 15 cm above the river bottom to characterize flows that directly influence fountain darters. Mean-column velocity was measured at 60% of water depth when depths were less than three feet. At depths of three feet or greater, water velocities were measured at 20% and 80% of depth and averaged to estimate mean column velocity. Water quality was measured within each drop-net using a YSI multiprobe, which included water temperature (degrees Celsius [°C]), pH, dissolved oxygen (milligrams per liter [mg/L], percent saturation), and specific conductance (microsiemens per centimeter [μ s/cm]). Mid-column water quality was measured at water depths less than three feet, whereas bottom and surface values were measured and averaged at depths of three feet or greater. Lastly, vegetation composition (%) was visually estimated and dominant substrate type was recorded within each drop-net sample.

Dip-Net Sampling

Dip-net sampling was used to provide additional metrics for assessing fountain darter population trends and included qualitative timed surveys and random-station presence/absence surveys. All sampling was conducted using a 40x40 cm (1.6-mm-mesh) dip-net, and surveys for both methods were conducted in spring, summer, and fall.

Timed dip-net sampling was conducted to examine patterns in fountain darter catch rates and size structure along a more extensive longitudinal gradient compared to drop-net sampling. Surveys were conducted within established survey sections and for a fixed amount of search effort (Spring Lake: 0.5 hour, City Park: 1.0 hour, I-35: 1.0 hour, Cypress Tree: 0.5 hour, Todd Island: 0.5 hour) (Figures 2 and 3). In each study reach, a single surveyor used a dip-net to collect fountain darters in a downstream to upstream fashion. Collection efforts mainly focused on suitable fountain darter habitat, specifically in areas with dense aquatic vegetation. Non-wadeable habitats (>1.4 m) were not sampled. All fountain darters collected were enumerated, measured (mm), and returned to the river at point of collection.

Random-station presence/absence surveys were implemented to assess fountain darter occurrence. During each monitoring event, sample stations were randomly selected within the vegetated area of each reach (Spring Lake: 10, Spring Lake Dam: 15, City Park: 20, I-35: 15) (Figure 1). At each random-station, presence/absence was recorded during four independent dips. To avoid recapture, collected fountain darters were returned to the river in areas adjacent to the random station being sampled. Habitat variables recorded at each station included dominant aquatic vegetation and presence/absence of bryophytes and algae.

Data Analysis

Key demographic parameters used to evaluate fountain darter observations included population performance, size structure, and recruitment. Population performance was assessed using drop-net, timed dip-net, and random dip-net data. Counts of darters per drop-net sample were standardized as density (darters/m²). Timed dip-net total darter counts per study reach were standardized as catch-per-unit-effort (CPUE; darters/person-hour [p-h]) for each sampling event. Random dip-net occurrence per station was based on whether or not a fountain darter was observed during any of the four dips and percent occurrence was calculated per sampling event at each reach as: (sum[darter presence]/sum[random stations])*100. Fountain darter density, CPUE, and occurrence were compared among seasons using boxplots. In addition, density and CPUE seasonal observations were compared to the past five years and long-term observations (2001–present). Occurrence values were only compared to observations from the past five years due to the fact that Texas wild-rice was excluded from sampling prior to 2017. Lastly, temporal trends in fountain darter density were assessed per sampling event for each study reach for the past five years using boxplots and compared to their respective long-term (2001–present) medians and quartiles (25th and 75th percentile). Data from random dip-net sampling in winter are not presented in Figure 11 which depicts annual, 5-year and long-term observations because sampling in winter only occurs under low flow conditions. Data from winter are instead described in the text.

Size structure and recruitment were assessed among seasons. Fall and spring were assessed by combining drop-net and timed dip-net data, and summer was assessed using timed dip-net data only. Boxplots coupled with violin plots were used to display the distribution of darter lengths per sampling event for each season for the past five years. Boxplots show basic length-distribution statistics (i.e., median, quartiles, range) and violin plots visually display the full distribution of lengths relative to each sampling event using kernel probability density estimation (Hintze and Nelson 1998). Recruitment was quantified as the percent of darters ≤ 20 mm during each sampling event. Based on a linear model built by Brandt et al. (1993) that looked at age-length relationships of laboratory-reared fountain darters, individuals of this size are likely less than 3 months old and not sexually mature (Brandt et al. 1993; Schenck and Whiteside 1976). Percent recruitment $\pm 95\%$ confidence intervals (beta distribution percentiles; McDonald 2014) were shown for the past five years by season and compared to their respective long-term averages.

Habitat use was assessed based on population performance and size structure among vegetation strata using drop-net and random station dip-net observations. Fountain darter density by vegetation taxa was compared based on current, five-year, and long-term (2001–present) observations using boxplots. Long-term comparisons of Texas wild-rice were not provided since 2020 was the first year this species was sampled via drop-netting. In addition, Texas wild-rice was not sampled during spring or fall drop-netting due to river discharge remaining below 120 cfs. Proportion of occurrence was also calculated among vegetation types sampled during random-station dip-netting for the current year. Lastly, boxplots coupled with violin plots were used to display the distribution of darter lengths by vegetation taxa using drop-net data to examine habitat use among size classes for the current year. Open habitats and Texas wild-rice were omitted from analysis due to limited darter counts (i.e., less than 3 darters total).

Habitat suitability was quantified to examine reach-level changes in habitat quality for fountain darters through time. First, Habitat Suitability Criteria (HSC) ranging from 0 (unsuitable habitat) to 1 (most suitable habitat) were built based on occurrence data for all vegetation types (including open habitat) that have been sampled using logistic regression (Manly et al. 1993). Resulting HSC were then multiplied by the areal coverage of each vegetation strata mapped during a biomonitoring event, and results were summed across vegetation strata to calculate a weighted usable area for each reach. To make data comparable between reaches of different sizes, the total weighted usable area of each reach was then divided by the total area of the reach, resulting in an Overall Habitat Suitability Index (OHSI) for each reach during each sampling event. Following this method, temporal trends of fountain darter OHSI $\pm 95\%$ CI were calculated per sampling event for each study reach (Spring Lake Dam, City Park, I-35) for the past five years. Long-term (2003–present) OHSI and 95% CI averages were also calculated to provide historical context to recent observations. Specific details on the analytical framework used for developing OHSI and evaluating its efficacy as a fountain darter habitat index, including methods to build HSC, can be found in Appendix H.

Fish Community

Mesohabitat, Microhabitat, and Seine Sampling

Fish community sampling was conducted in the spring and fall monitoring events to quantify fish assemblage composition/structure and to assess fountain darters in river segments and habitats (e.g., deeper areas) not sampled during drop-net and timed dip-net surveys. The following nine monitoring segments were sampled: Spring Lake, Sewell Park, Veterans Plaza, Rio Vista Park, Crooks Park, I-35, Thompson Island, Wastewater Treatment Plant, and Smith Property (Figures 2 and 3). Deeper habitats were sampled using visual transect surveys, and shallow habitats were sampled via seining.

A total of three mesohabitat transects were sampled at each segment during visual surveys. At each transect, four divers swam from bank-to-bank at approximately mid-column depth, enumerating all fishes observed and identifying them to species. After each mesohabitat transect was completed, microhabitat sampling was also conducted along four, five-meter-long PVC pipe segments (micro-transect pipes) placed on the stream bottom and spaced evenly along the original transect. Divers started at the downstream end and swam up the pipe searching through the vegetation, if present, and substrate within approximately 1 m of the pipe. All fishes observed were identified to species and enumerated. For both surveys, any individuals that could not be identified to species were classified by genus. At each micro-transect-pipe, total area surveyed (m^2), aquatic vegetation composition (%), and substrate composition (%) were recorded. Water depth (ft) and velocity (ft/s) data were collected in the middle of each micro-transect-pipe using a Marsh McBirney Model 2000 portable flowmeter and adjustable wading rod. At each micro-transect pipe, water-velocity measurements were taken 15 cm from the bottom, mid-column, and at the surface. Standard water-quality parameters were also recorded once at each transect using a handheld water-quality sonde.

In shallow habitats, at least three transects were sampled within each monitoring segment (except Spring Lake) via seining. At each of these, multiple seine hauls were pulled until the entire wadeable area had been covered. After each seine haul, fish were identified, measured (mm), and enumerated. To prevent recapture on subsequent seine hauls, captured fish were placed in a holding bucket containing river water. After completion of the transect, all fish were released from holding buckets. Total area surveyed (m^2) was visually estimated for each seining transect. Habitat data from each seine haul location included substrate and vegetation composition (%); water depth (ft); and velocity (ft/s) measured at 15 cm above the river bottom, at mid-column, and at the surface. Fish taxonomy herein follows the most recent guide published by the American Fisheries Society (AFS 2023).

Data Analysis

To evaluate fish community results, all analyses were conducted using fishes identified to species; fishes identified to genus or family were excluded. Total counts of species from independent samples were first quantified as density (fish/ m^2) to standardize abundance among the three gear types used. Results from multiple sites were combined to assess spatial longitudinal differences between Spring Lake, Upper River (Sewell Park, Veterans Plaza),

Middle River (Rio Vista Park, Crooks Park, I-35), and Lower River (Thompson Island, Wastewater Treatment Plant, Smith Property) (hereafter ‘study segments’).

Based on microhabitat sampling, temporal trends in fountain darter density were assessed per sampling event for each study reach for the past five years using boxplots and compared to their respective long-term (2014–present) medians and quartiles. Overall species richness and diversity using the Shannon’s diversity index (Spellerberg and Fedor 2003) for each study segment was assessed for the past five years and plotted with bar graphs. Richness and relative density (%; $[\text{sum}(\text{species} \times \text{density})/\text{sum}(\text{all species density})] \times 100$) of spring-associated fishes (Table 2) were also quantified and presented in the same manner as species richness and diversity.

Table 2. Spring-associated fishes within the San Marcos Springs system based on Craig et al. (2016).

SCIENTIFIC NAME	COMMON NAME
<i>Dionda nigrotaeniata</i>	Guadalupe roundnose minnow
<i>Notropis amabilis</i>	Texas shiner
<i>Alburnops chalybaeus</i>	ironcolor shiner
<i>Astyanax argentatus</i>	Texas tetra
<i>Gambusia geiseri</i>	Largespring Gambusia
<i>Etheostoma fonticola</i>	fountain darter
<i>Percina apristis</i>	Guadalupe darter
<i>Percina carbonaria</i>	Texas logperch

San Marcos Salamander

Visual Surveys

Salamander surveys were conducted during the spring and fall monitoring events at three sites within Spring Lake and the San Marcos River (Figure 1), which were previously described as habitat for San Marcos salamander (Nelson 1993). Two of the sites are located within Spring Lake: the Hotel Site is adjacent to the old hotel, and the Riverbed Site was located across from the former Aquarena Springs boat dock. The third survey area, called the Spring Lake Dam Site, is located in the main river channel immediately downstream of Spring Lake Dam in the eastern spillway. This site is subdivided into three smaller areas to focus on suitable salamander habitat.

SCUBA gear was used to sample habitats in Spring Lake, while a mask and snorkel were used in the site below Spring Lake Dam. For each sample, an area of macrophyte-free rock was outlined using flagging tape, and three timed surveys (five minutes each) were conducted by overturning rocks >5 cm wide and counting the number of San Marcos salamanders observed underneath. Following each timed search, the total number of rocks surveyed was recorded to estimate the number of San Marcos salamanders per rock in the area searched. The three surveys were averaged to yield the number of San Marcos salamanders per rock. Densities of suitably sized rocks at each sampling site were determined using quadrats (0.25 m²). Three random samples were taken in each area by randomly throwing the quadrat into the sampling area and counting the number of appropriately sized rocks. The three samples were then averaged to yield a density estimate of the number of suitable rocks in the sampling area. The area of each site was determined by measuring each sampling area with a tape measure.

Data Analysis

Salamander densities (salamanders/m²) are presented for each season using bar graphs and are compared with long-term (2001–present) spring, fall, high-flow event, and low-flow event averages. High-flow and low-flow averages were calculated from Critical Period and species-specific events which are based on predetermined river discharge triggers (Appendix A) and result in additional survey events to assess flow-related impacts to the San Marcos salamander population. Temporal trends in salamander density were also assessed per sampling event for each study site for the past five years using bar graphs.

Macroinvertebrates

Rapid Bioassessment Sampling

Rapid Bioassessment Protocols (RBPs) are tools for evaluating biotic integrity and overall habitat health, based on the community of organisms present (Barbour et al. 1999).

Macroinvertebrates are the most frequently used biological units for RBPs because they are ubiquitous, diverse, and there is an acceptable working knowledge of their taxonomy and life histories (Poff et al. 2006, Merritt et al. 2008).

BIO-WEST performed sampling and processing of freshwater benthic macroinvertebrates, following Texas RBP standards (TCEQ 2014). Macroinvertebrates were sampled with a D-frame kick net (mesh size 500 micrometers [µm]) by disturbing riffle or run habitat (consisting primarily of cobble-gravel substrate) for five minutes while moving in a zig-zag fashion upstream. Invertebrates were then randomly distributed in a tray and subsamples were taken by scooping out random portions of material and placing them into a separate sorting tray.

All macroinvertebrates were picked from the tray before another subsample was taken. This process was continued until a minimum of 140 individuals were picked to represent a sample. If the entire sample did not contain 140 individuals, the process was repeated again until this minimum count was reached. Macroinvertebrates were collected in this fashion from Spring Lake, Spring Lake Dam, City Park, and I-35 reaches, during spring and fall sampling (Figure 1).

Sample Processing and Data Analysis

Picked samples were preserved in 80% denatured ethanol, returned to the laboratory, and identified to TCEQ-recommended taxonomic levels (TCEQ 2014). This is usually genus, though members of the family Chironomidae (non-biting midges) and class Oligochaeta (worms) were retained at those taxonomic levels. The 12 ecological measures or metrics of the Texas RBP benthic index of biotic integrity (B-IBI) were calculated for each sample. Each metric represents a functional aspect of the macroinvertebrate community, related to ecosystem health, and sample values are scored from 1 to 4 based on benchmarks set by reference condition streams for the state of Texas. The aggregate of all 12 metric scores for a sample represent the B-IBI score for the reach that sample was taken from. The B-IBI point-scores for each sample are compared to benchmark ranges and are described as having aquatic-life-uses as “Exceptional”, “High”, “Intermediate”, or “Limited”. In this way, point-scores were calculated and the aquatic-life-use for each sample reach was evaluated. Temporal trends in B-IBI scores were assessed per sampling event for each study site for the past five years using bar graphs.

RESULTS and DISCUSSION

River Discharge

Over the last five years, median daily discharge exhibited a declining trend from 2021 (155 cfs) to 2025 (88 cfs), representing a decrease in magnitude from about the 45th to 5th percentile, respectively. Similarly, maximum discharge decreased from 2021 (579 cfs) to 2025 (108 cfs). Maximum discharge in 2021 was the only year that experienced a >300 cfs high-flow pulse, which represents a > 99th percentile event. Minimum discharge in contrast, decreased from 2021 (99 cfs) to 2023 (66 cfs), then increased to 80 cfs in 2025. Variation in mean daily discharge (i.e., interquartile range) did not display a strong trend but was much higher in 2021 (57 cfs), 2022 (60 cfs), and 2024 (42 cfs) compared to 2023 (8 cfs) and 2025 (13 cfs) (Figure 5A). Despite the negative 5-year trend observed, deviations in median annual discharge from the long-term median (162 cfs) were less substantial compared to the Comal River, indicating greater springflow stability in the San Marcos River system (Figure 5A; see current report for the Comal system for further details). While differences in springflow stability between these systems are, at least in part, influenced by local precipitation patterns and water withdrawals, natural hydrogeologic factors also play an important role. Specifically, San Marcos Springs has more complex flow paths and receives groundwater flow from a broader area, including regional (i.e., Edwards and Trinity aquifers) and local (e.g., Blanco River) sources (Musgrove and Crow 2012; Smith et al. 2015).

Patterns in monthly river discharge were relatively stable in 2025. Median mean daily discharge was similar across seven months of the year, ranging from 83–90 cfs, and slightly exceeded 100 cfs from June–August (101–106 cfs). Across all months, median discharge was about 50–68% of their respective long-term medians and approximated 10th percentile long-term magnitudes. Both minimum and maximum discharge illustrated similar temporal patterns between months, with the minimum being lowest in January (81 cfs) and May (80 cfs), and larger maximums in June (107 cfs) and July (108 cfs). Flow variability was higher in June (12 cfs) compared to other months (Figure 5B). Greater and more variable discharge in June is likely due to surface runoff from precipitation events as well as both local and regional groundwater inputs. Local recharge contributions provided by the Blanco River can facilitate short-term increases in discharge during wetter periods (Smith et al. 2015). Given that the aquifer level increased about 10 ft during this time (J-17 Index Well; EAA 2025), local recharge was likely a key driver of observations in June, whereas regional recharge likely facilitated the extended increase in discharge from June to August.

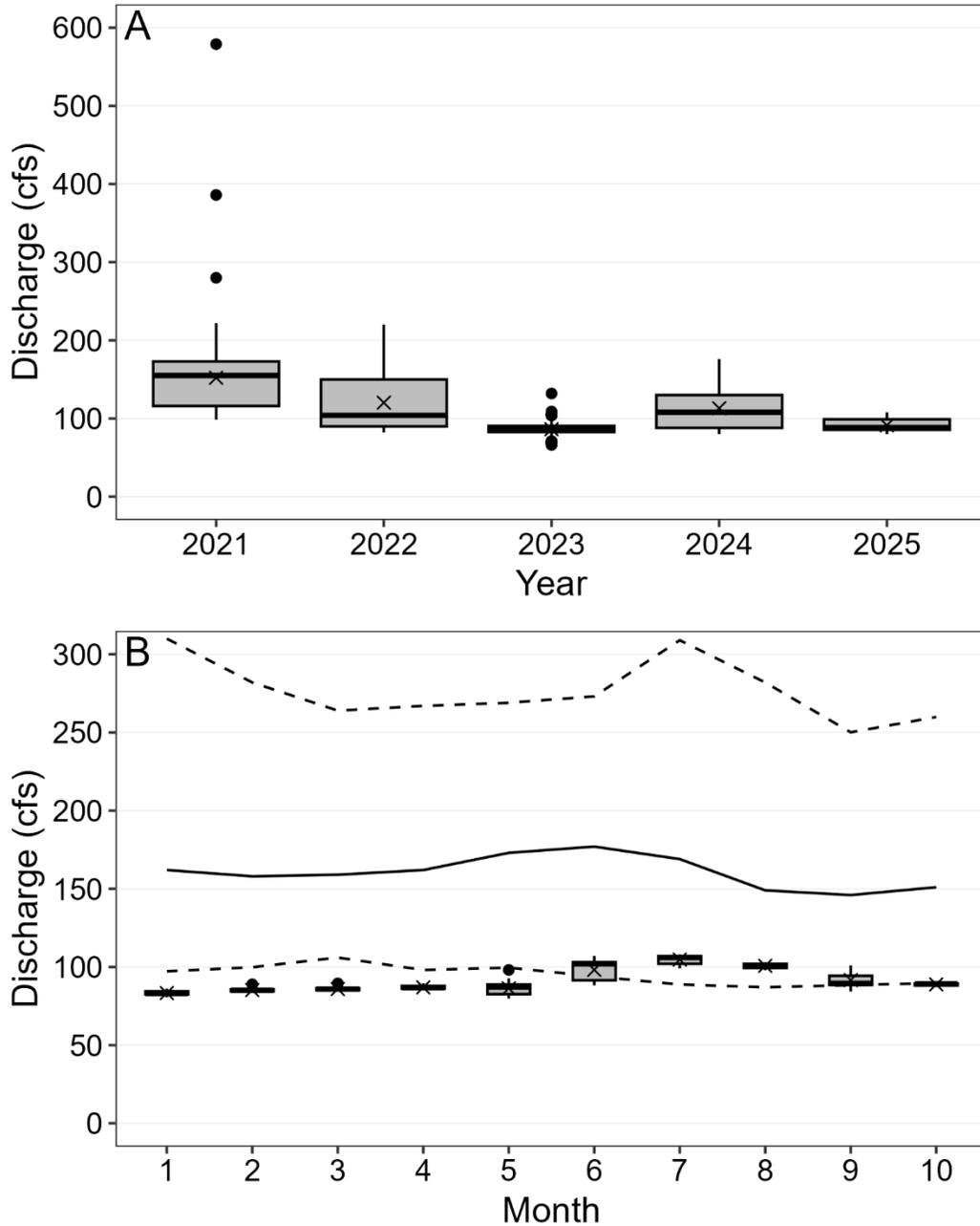


Figure 5. Boxplots displaying San Marcos River mean daily discharge annually from 2021–2025 (A) and among months (January–October) in 2025 (B). Each month is compared to the 10th percentile (lower dashed line), median (solid line), and 90th percentile (upper dashed line) of their historical (1956, 1994–2025) daily means. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range, and outliers beyond this are designated with solid black circles.

Water Temperature

Median water temperature did not display a strong longitudinal trend and increased about 1 °C from Spring Lake stations (22.0–22.4 °C) to Wastewater Treatment Plant (23.3 °C). Instead, water temperature illustrated a variability (i.e., interquartile range) gradient, increasing from < 1 °C in spring habitats to a maximum of about 2.5 °C at stations farthest downstream (Figure 6). This longitudinal gradient observed in 2025 matched 5-year and long-term data trends and is typical within spring-associated ecosystems, where water temperatures increase in magnitude and variation distance from spring inputs increases (Kollaus and Bonner 2012). This pattern of greater variation with increasing distance downstream coincided with more frequent measurements ≥ 25 °C. Water temperature did not exceed 25 °C at Spring Lake Deep, Spring Lake, and Chute, but did at the remaining stations. Water temperature exceeded 26 °C from Rio Vista Park to Wastewater Treatment Plant. Measurements ≥ 26 °C were generally rare at these stations but were most frequent at Thompson Island Artificial and Wastewater Treatment Plant (Figure 6).

The fountain darter larval production threshold (25 °C) was exceeded infrequently at the most upstream riverine stations. Specifically, the percent of days per month in which exceedance occurred was ~3–45% at Spring Lake Dam (May–August) and ~6–23% at City Park (May–June). Based on the past five years, the larval threshold exceedance was similar between years at Spring Lake Dam and occurred less frequently at City Park in 2025. For the remaining stations, exceedances rarely happened from March (3% at Rio Vista Park) to April (~3–17% days from Rio Vista Park to Wastewater Treatment Plant), with the majority occurring from May to August. Larval threshold exceedance frequencies were consistently highest in June, July, and August, occurring $\geq \sim 50\%$ of days per month. In September, the larval threshold was surpassed more frequently at Rio Vista Park (77%) and Wastewater Treatment Plant (57%) compared to the remaining downstream stations (17–43%). Threshold exceedance from Rio Vista Park to Wastewater treatment plant was generally more frequent in 2025 compared to 2021–2024. Percent exceedance of the larval threshold per day typically ranged from ~17–33%.

Monthly patterns in exceedance of the optimal egg production threshold (26 °C) were less frequent than the larval threshold and generally occurred between May and August from Rio Vista Park and downstream. Exceedances occurred for ~3–7% of days per month at Rio Vista Park and was 3% in June at I-35. For the remaining stations, egg threshold exceedance was highest in June (~20–37%), and was also more frequent at Wastewater Treatment Plant in May (19%) and August (32%). The egg production threshold was surpassed less frequently for the remaining months, ranging from ~3–13%. Overall, this threshold was exceeded at a lower frequency across all stations in 2025 compared to observations from 2021–2024. Across all stations, typical percent exceedance of the egg threshold per day was consistently ~33%.

In summary, exceedances of these early life stage water temperature thresholds were relatively common during the spring and summer in 2025, particularly at downstream stations. However, observed patterns in population demography across all three sampling methods for fountain darters suggest these periods of elevated water temperatures did not have a strong negative effect on recruitment rates or overall population condition (see subsequent sections for more details).

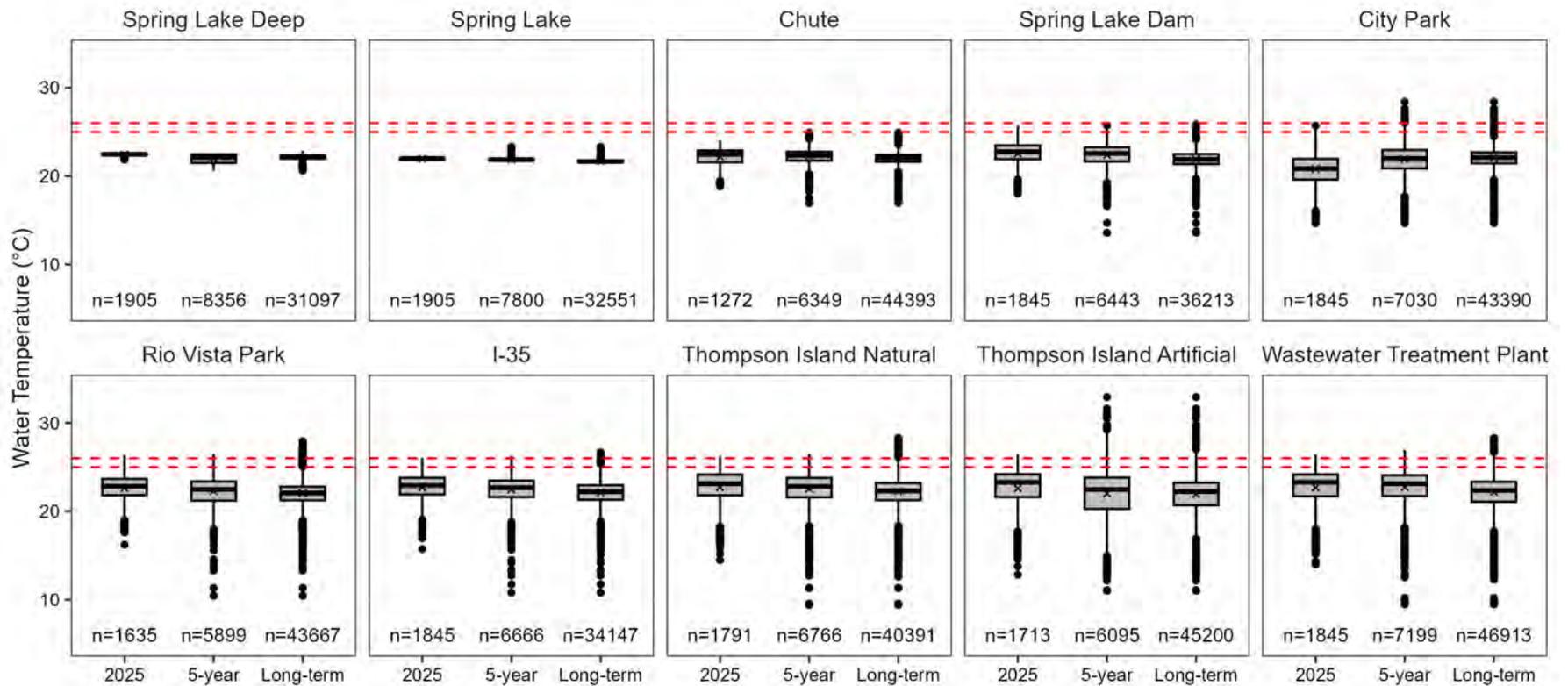


Figure 6. Boxplots displaying 2025, 5-year (2021–2025), and long-term (2001–2025) water temperature trends in the San Marcos Springs/River. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range, and outliers beyond this are designated with solid black circles. The “n” values along the x-axis represent the number of individual temperature measurements in each category. The lower and upper red dashed lines indicate maximum optimal temperatures for fountain darter larval (≥ 25 °C) and egg (≥ 26 °C) production (McDonald et al. 2007), respectively.

Aquatic Vegetation

Aquatic vegetation was mapped in the long-term biological goal reaches a total of four times in 2025. The first low-flow event occurred in January when flow declined below 85 cfs. Flow approximated 85 cfs through March when vegetation was mapped again as part of the routine spring sampling effort. The second low-flow event occurred in June as flow remained at similar levels. The final mapping event occurred in September as part of the routine fall comprehensive sampling effort.

Spring Lake Dam Reach

Similar to 2024, aquatic vegetation in the Spring Lake Dam reach remained relatively stable throughout 2025. Total vegetation coverage increased from 1,196 m² in spring to 1,319 m² in fall (Figure 7). Spring total coverage was below its long-term spring average (1,474 m²), whereas fall total coverage was greater than its long-term average (1,207 m²). Among the low-flow mapping events, only the January total vegetation coverage (1,195 m²) approximated the long-term low flow average (1,193 m²). In contrast, the June total vegetation coverage (1,389 m²) was greater than the long-term average. Texas wild-rice was the dominant taxa across all mapping events, representing 80-86% of the assemblage across all events (Figure 8). Aside from Texas wild-rice, *Hydrocotyle* maintained the most consistent presence in the reach and was the second most dominant taxa across all events. *Hydrocotyle* and *Potamogeton* together comprised 199 m² in spring and 150 m² in fall. Coverage of these and other vegetation taxa was dependent on recreation activities throughout the year as they appeared and disappeared within the main recreational channel. Sustained low flows early in the year likely contributed to the lower-than-average vegetation coverage in spring. As in previous low flow years, low flows throughout 2025 produced shallower depths which facilitated more recreational wading and swimming. That said, the addition of recreation barriers around the spillway has seemingly decreased wading in the area and in particular, around the largest Texas wild-rice stands in the reach.

City Park Reach

In City Park, total vegetation coverage initially increased from January (2,728 m²) to spring (3,321 m²; Figure 7). Among the vegetation taxa in spring, Texas wild-rice accounted for 3,194 m² (96%) and all other species accounted for 127 m² (4%; Figure 8). While spring had the largest vegetation coverage throughout the year, it remained below the long-term spring average (4,010 m²). Total coverage then decreased and remained similar from June (2,825 m²) to fall (2,859 m²), and Texas wild-rice continued as the dominant taxa comprising 95% and 90% of the assemblage, respectively. Taxa other than Texas wild-rice accounted for 274 m² in fall. Total coverages from both low flow events and the fall event were lower than their respective long-term averages (Figure 7). Compared to the other study reaches, City Park maintains the largest amount of vegetation and also receives the most impacts from wading, swimming, and tubing. Despite these recreational pressures, Texas wild-rice expanded in the upper half of the City Park reach and filled in a majority of the main channel. In contrast, wading, tubing, and swimming activities in the lower half of the reach have thinned Texas wild-rice there. *Cabomba* was the second most dominant taxa throughout the year and has persisted in multiple areas within the reach (Figure 8). Bryophytes were not observed in fall 2024 (except intermixed with other taxa); however, they reestablished by January 2025 (137 m²) before declining to 68 m² by fall.

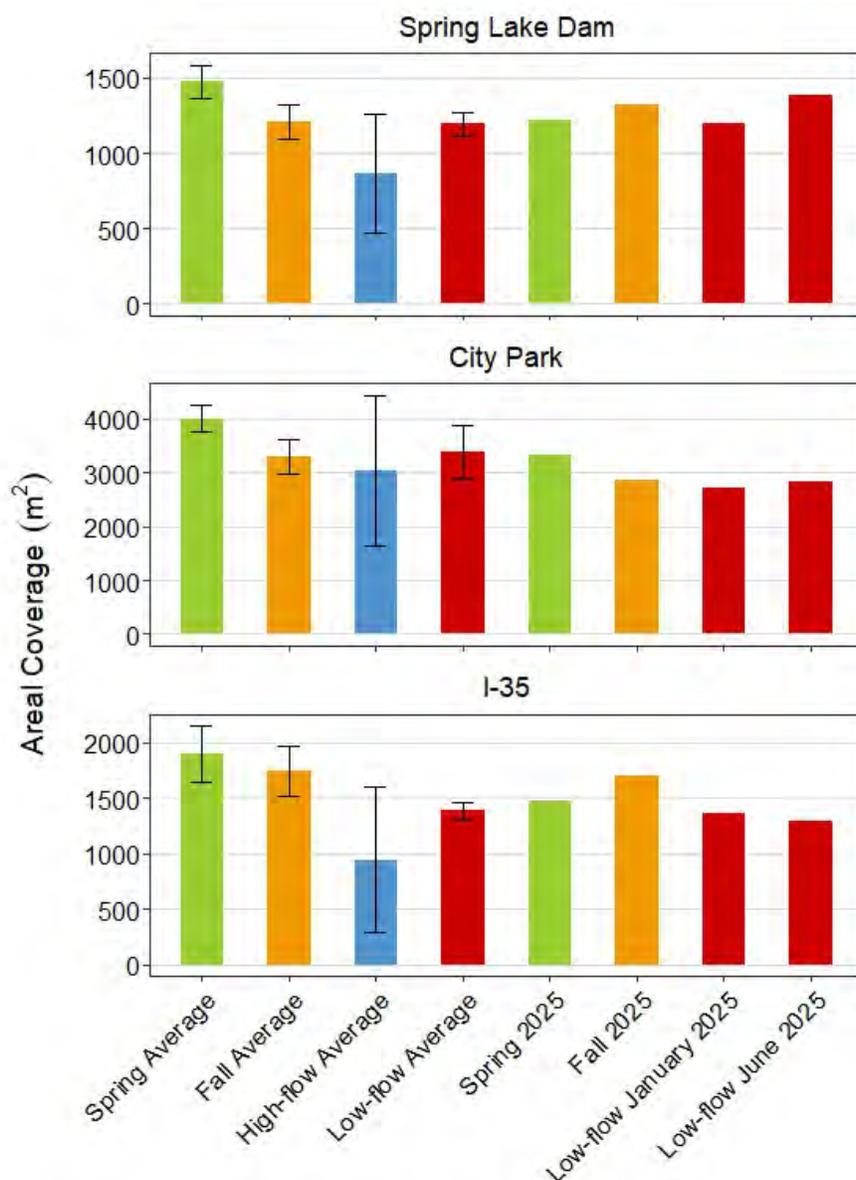


Figure 7. Areal Coverage (m²) of aquatic vegetation among study reaches in the San Marcos River. Long-term study averages were calculated from 2000-2025 for Spring Lake Dam and City Park and from 2014-2025 for I-35. Long-term study averages are provided with error bars representing 95% confidence intervals.

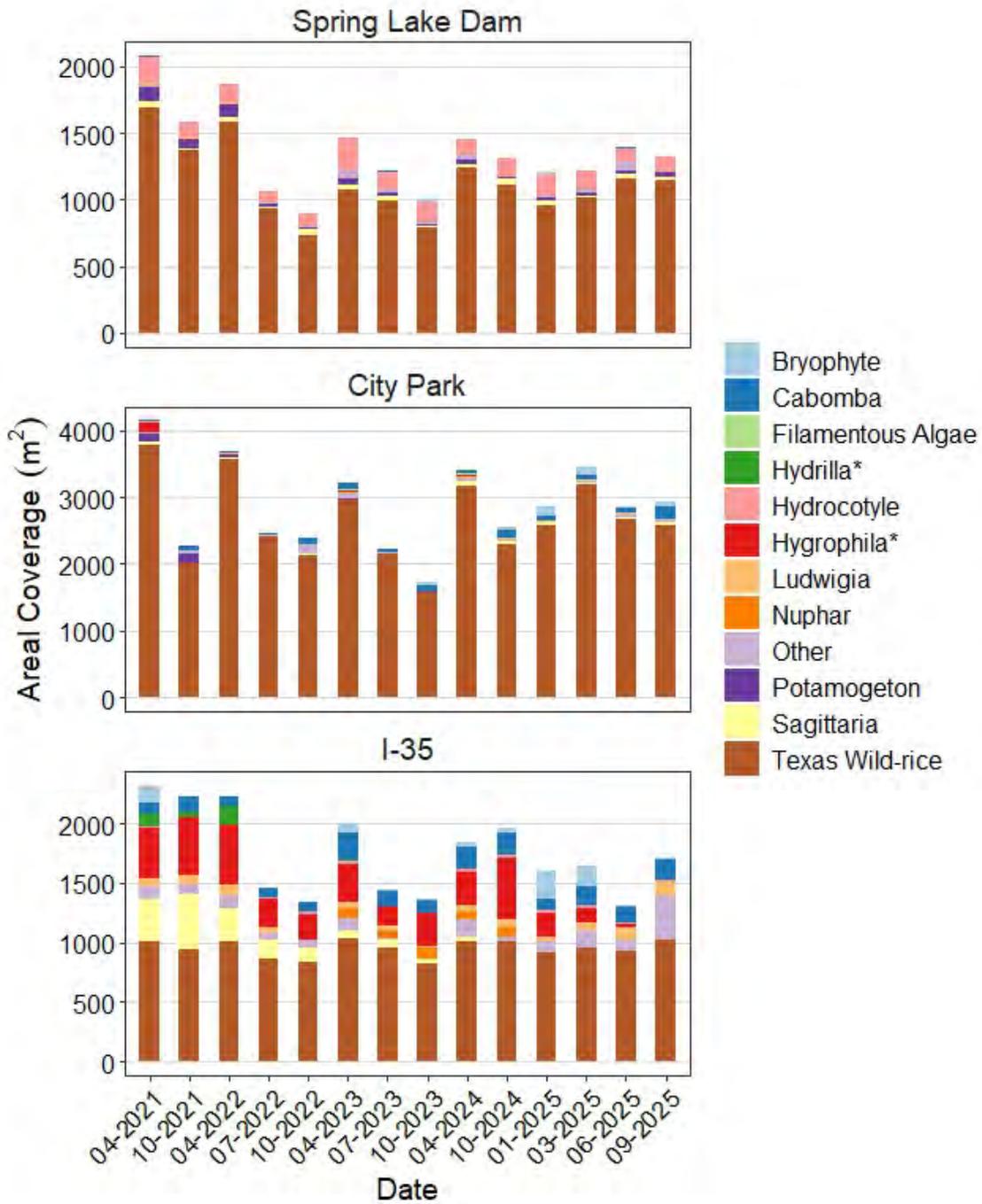


Figure 8. Aquatic vegetation (m²) composition among taxa (top row) from 2021–2025 in the San Marcos River. (*) in the legend denote non-native taxa.

I-35 Reach

Total vegetation coverage at I-35 fluctuated throughout the year. Total coverage in the January low-flow event was 1,362 m² and increased slightly to 1,478 m² in spring (Figure 7). Vegetation

coverage decreased to 1,297 m² in June then increased again to a maximum of 1,698 m² in fall. Total coverage in the January low-flow event and fall events approximated their respective long-term averages, while coverage in spring and the June low-flow event were below their long-term averages (Figure 7). Texas wild-rice was the dominant taxa, representing 60% (fall) to 71% (June) of the I-35 assemblage (Figure 8). Although Texas wild-rice was very abundant, I-35 remained the most diverse reach with *Cabomba*, *Ludwigia*, and *Nuphar* also common (Figure 8). Expansion of *Cabomba* and *Ludwigia* contributed a majority of the increase in vegetation coverage throughout the year, with *Cabomba* increasing by 85 m² and *Ludwigia* increasing by 78 m². At the same time, *Hygrophila*, which has historically been abundant in this reach, decreased from 195 m² in January to 0 m² in fall (Figure 8). It appears that with assistance from removal and restoration efforts, *Ludwigia* has expanded in areas where *Hygrophila* contracted. Bryophytes also persisted in stand-alone patches and intermixed with other taxa. However, bryophytes declined from 244 m² in January to 13 m² in fall. River morphology has changed throughout the I-35 reach in recent years due to low flows. As a result of the sustained low flows during 2025, the majority of flow remained diverted to river right and littoral and terrestrial taxa have established in the dewatered area on river left near Snake Island. For example, terrestrial grass (i.e., *Leersia*) increased from spring to fall near Snake Island in areas remained dewatered during 2025 (Figure 8). Amphibious taxa such as *Hygrophila* and *Sagittaria* dominated these fringe areas, while taxa like *Cabomba* and Texas wild-rice shifted to deeper water.

Texas Wild-Rice

Texas Wild-Rice Mapping

In 2025, Texas wild-rice was mapped twice from Spring Lake to the confluence of the Blanco River. The first mapping event occurred in January/February as a result of low flow and the second event occurred in August/September during the annual summer mapping. In January 2025, river discharge was ~80 cfs and increased slightly to ~90 cfs until late May. Rain events in June and early July provided some relief which increased river discharge to ~100 cfs. Flow then declined to ~90 cfs and has remained similar in subsequent months. Full system maps are located in Appendix C.

Total Texas wild-rice coverage was 12,604 m² during the January/February event and was 12,586 m² during the annual summer mapping event. The stability of Texas wild-rice coverage from January to August reflected the relative stability of flows throughout 2025 in which variation in mean daily discharge was 13 cfs. Both coverages represent an increase from the previous summer mapping event in 2024 (11,272 m²; Figure 9). Similar to the increases from 2023 to 2024, the increase in 2025 is partly attributed to expansion below Cheatham Street bridge and areas around Purgatory Creek and Hopkins Bridge which have been cleared of *Hydrilla*. Texas wild-rice continues to experience impacts from recreation and dewatering as weedy riparian vegetation outcompetes emergent Texas wild-rice in shallow areas, most notably in Sewell Park. That said, Texas wild-rice did persist and expand in deeper pools and river channels throughout the year. Furthermore, Texas wild-rice coverage in 2025 remained well above pre-HCP levels and within the range of higher coverages observed since 2018.

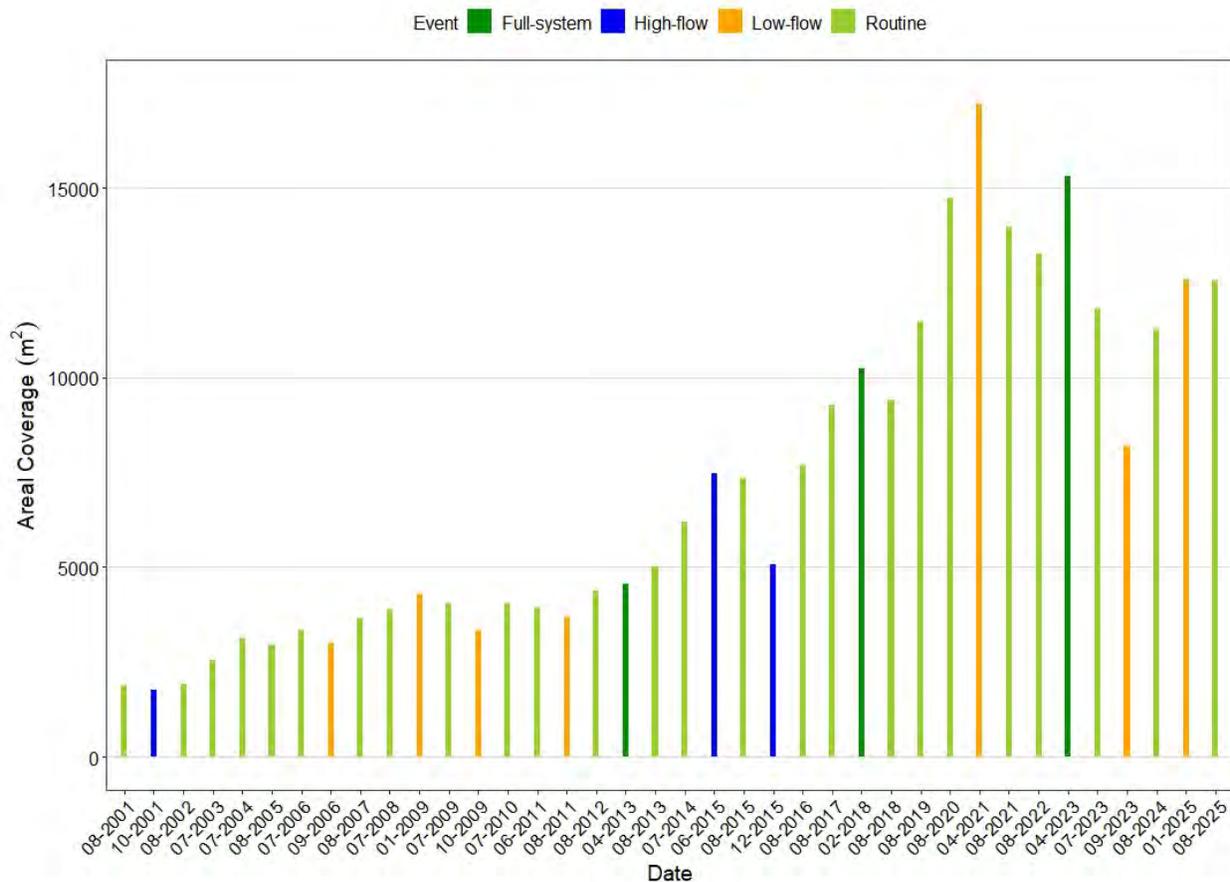


Figure 9. Texas wild-rice areal coverage (m²) from 2001–2025 in the upper San Marcos River.

Between July/August 2024 and August/September 2025, Texas wild-rice total coverage increased by 1,314 m² (Table 3). Small to moderate increases in coverage occurred in every river segment except Spring Lake in which Texas wild-rice decreased by 27%. The largest increase occurred in Segment E (Lower City Park) with Texas wild-rice coverage expanding by 25% compared to the previous summer. Despite low flows, the Lower City Park area remained relatively deep which reduced trampling of plants by river recreators. Texas wild-rice coverage in 2025 remained similar in several segments compared to summer 2024 (Table 3). Segment B (Sewell Park) remained similar in coverage; however, Texas wild-rice was more susceptible to competition from terrestrial vegetation in this segment. Texas wild-rice coverage increased slightly in Segment F (Veramendi Park to Rio Vista Park). Some planting of Texas wild-rice in this area has promoted expansion, and it is anticipated that coverage in this segment has the greatest potential for increase over the next few years. Segment H (Below I-35) also maintained a similar amount of Texas wild-rice compared to the previous year. In recent years, Texas wild-rice has steadily increased in this segment largely as a result of natural expansion above Cape’s Dam. This segment experiences less recreation and maintains consistently deeper water despite low flow.

Overall, the Texas wild-rice population continues to persist despite low-flow conditions that have been present for four consecutive years. In 2025, river discharge was more stable which minimized the amount of dewatered areas. Although competition with terrestrial vegetation still occurs along the fringes near dewatered areas, some sections of the San Marcos River have maintained deeper refugia allowing Texas wild-rice to expand. The consistent river conditions and deeper refugia reduced stress on Texas wild-rice which promoted survival and expansion from 2024 to 2025.

Table 3. Change in coverage (m²) of Texas wild-rice between July/August 2024 and August/September 2025 annual mapping.

RIVER SEGMENT	JULY/AUGUST 2024 COVERAGE	AUGUST/ SEPTEMBER 2025 COVERAGE	COVERAGE CHANGE	PERCENT CHANGE
A. Spring Lake Dam Study Reach	1,063	1,208	+145	+14%
B. Sewell Park	732	794	+62	+8%
C. City Park bend	2,159	2,536	+377	+17%
D. City Park Study Reach	2,344	2,550	+206	+9%
E. Lower City Park	1,095	1,371	+276	+25%
F. Veramendi Park to Rio Vista Park	2,189	2,284	+95	+4%
G. I-35 Study Reach	986	1,154	+168	+17%
H. Below I-35	571	583	+12	+2%
Spring Lake	133	106	-27	-20%
TOTAL	11,272	12,586	1,314	11%



Figure 10. Emergent and terrestrial plants seen among Texas wild-rice stands in October 2025 along river right at Sewell Park.

Fountain Darter

A total of 906 fountain darters were observed at 50 drop-net samples in 2025. Drop-net densities ranged from 0.00–51.50 darters/m². Community summaries and raw drop-net data are included in Appendix E and Appendix G, respectively. Habitat conditions observed during drop-netting are summarized in Table 4. Drop-net sampling was not conducted in Texas wild-rice in 2025 because river discharge was below 120 cfs during each sampling event.

Table 4. Habitat conditions observed during 2025 drop-net sampling. Physical habitat parameters include counts of dominant vegetation (median % composition) and dominant substrate type sampled. Depth/velocity and water quality parameters include medians (min-max) of each variable among all drop-net samples.

HABITAT PARAMETERS	SLD	CP	I-35
Vegetation			
Bryophyte ¹	0	4 (88%)	0
<i>Cabomba</i> ¹	0	4 (100%)	4 (95%)
<i>Hydrocotyle</i> ¹	4 (98%)	0	4 (80%)
<i>Hygrophila</i> ¹	0	0	2 (100%)
<i>Ludwigia</i> ¹	0	0	4 (83%)
Open	4 (100%)	4 (100%)	4 (100%)
<i>Potamogeton</i> ²	4 (90%)	0	0
<i>Sagittaria</i> ²	4 (100%)	4 (90%)	0
Substrate			
Cobble	8	2	0
Gravel	5	5	3
Sand	0	2	11
Silt	3	7	4
Depth/velocity			
Water depth (ft)	0.8 (0.2–2.2)	1.5 (0.7–2.7)	1.0 (0.5–2.0)
Mean column velocity (ft/s)	0.2 (0.0–1.3)	0.1 (0.0–0.7)	0.3 (0.0–1.4)
15-cm column velocity (ft/s)	0.1 (0.0–1.1)	0.1 (0.0–0.8)	0.4 (0.0–1.4)
Water quality			
Water temperature (°C)	22.4 (22.2–22.8)	22.4 (21.5–24.8)	22.5 (22.1–23.2)
DO (ppm)	7.8 (7.1–8.4)	8.3 (6.3–10.7)	7.8 (6.7–8.9)
DO % saturation	89.8 (81.4–97.2)	95.1 (71.1–125.1)	90.5 (77.1–103.9)
pH	7.5 (7.4–7.9)	7.6 (7.3–7.9)	7.8 (7.6–7.9)
Specific conductance (µs/cm)	661 (657–674)	656 (637–667)	660 (655–664)

¹Denotes ornate vegetation taxa with physical characteristics that create complex structure

²Denotes long broad or ribbon-like, austere-leaved vegetation taxa

Timed dip-netting resulted in a total of 530 fountain darters during 10.5 person-hours (p-h) of effort. Site CPUE ranged from 2–150 darters/p-h. During random dip-netting, fountain darters were detected at 79 out of 300 (26.3%) stations. Reach-level percent occurrence among monitoring events ranged from 10.0–60.0%. Summaries of patterns in occurrence per reach and vegetation taxa can be found in Table 5.

Table 5. Summary of vegetation types sampled among reaches during 2025 random-station surveys in the San Marcos Springs/River and the percent occurrence of fountain darters in each reach and vegetation type. Raw numbers represent the sum of detections per reach/vegetation type and '-' denotes that the vegetation type was not sampled.

VEGETATION TYPE	SL	SLD	CP	I-35	Total Detections	Total Samples	Occurrence (%)
<i>Bacopa</i> ¹	-	-	1	-	0	1	0.0
Bryophyte ¹	-	-	2	2	2	4	50.0
<i>Cabomba</i> ¹	11	-	7	16	12	34	35.3
Graminoid ²	-	-	-	1	0	1	0.0
<i>Hydrocotyle</i> ¹	-	8	-	1	8	9	88.9
<i>Hygrophila</i> ¹	-	-	-	1	0	1	0.0
<i>Ludwigia</i> ¹	-	-	-	9	0	9	0.0
<i>Myriophyllum</i> ¹	1	-	-	-	0	1	0.0
<i>Nuphar</i> ²	-	-	-	2	0	2	0.0
<i>Potamogeton</i> ²	-	3	-	-	2	3	66.7
<i>Sagittaria</i> ²	38	3	2	-	15	43	34.9
Texas wild-rice ²	-	61	88	43	40	192	20.8
Total Detections	17	24	38	32	79	300	26.3
Total Samples	50	75	100	75	-	-	-
Occurrence (%)	34.0	32.0	38.0	42.7	-	-	-

¹Denotes ornate vegetation taxa with physical characteristics that create complex structure

²Denotes long broad or ribbon-like, austere-leaved vegetation taxa

Population Demography

Seasonal population trends

Median fountain darter density in 2025 increased from spring (3.75 darters/m²) to fall (4.50 darters/m²). Similarly, upper quartiles and variability (i.e., interquartile range) increased from spring (9.75 and 8.75 darters/m², respectively) to fall (both 11.75 darters/m²) (Figure 11A). Timed dip-netting demonstrated similar catch rates among seasons, with median CPUE ranging from 44 darters/p-h in summer to 55–56 darters/p-h in spring and fall (Figure 11B). Patterns in occurrence observed during random dip-netting illustrated a bell-shaped trend. Median occurrence increased from winter (31.7%) to summer (40.0%), then decreased by fall (25%) (Figure 11C). Compared to historical observations, median CPUE was similar in 2025, with the exception of higher median catch rates in fall. Upper quartile catch rates were slightly below historical expectations in summer and fall, but similar in spring. Although less apparent in summer, spring and fall occurrence data show a pattern of decreasing upper quartile and median values in recent years. This may reflect fountain darters utilizing smaller percentages of the available habitat as Texas wild-rice has expanded to dominate vegetation communities within the sampling reaches in recent years. Fountain darter density also differed from historical trends. Median density was higher than both historical groups in spring and fall. Further, upper quartiles for 2025 and 5-year observations were higher than long-term trends across all three seasons (Figure 11). In summary, results presented in Figure 11 suggest increasing densities of fountain darters within vegetation types sampled by drop-netting in 2025 (which excludes Texas wild-

rice). However, occurrence data from random station dip-netting, which selects sites independent of vegetation taxa, suggests that darters within several reaches occupy a smaller percentage of the available vegetated habitat for multiple seasons in recent years.

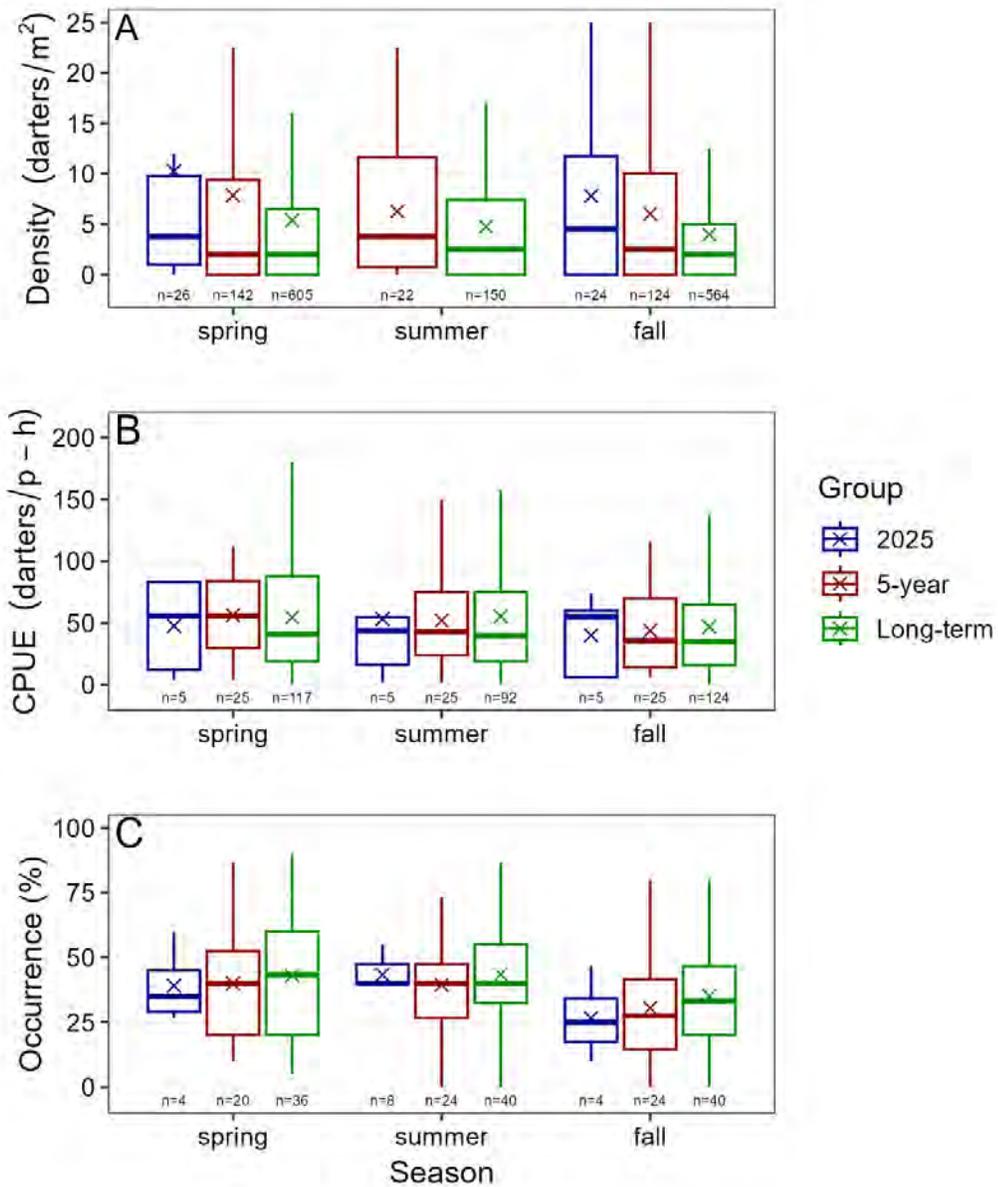


Figure 11. Boxplots comparing fountain darter density from drop-net sampling (A), catch-per-unit-effort (CPUE) from timed dip-netting (B), and percent occurrence from random-station dip-netting (C) among seasons in the San Marcos Springs/River. Temporal groups include 2025, 5-year (2021–2025), and long-term (2001–2025) observations. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. The “n” values along the x-axes represent the number of discrete samples per category.

Drop-net sampling density trends

Temporal trends in fountain darter density from 2021–2025 varied across reaches. Median and upper quartile densities over time were weakly correlated ($r < 0.50$) between reaches, suggesting spatially asynchronous dynamics. From 2021–2023, all reaches generally displayed regular seasonal changes in median density that fluctuated around their respective long-term trends. Median density in 2025 continued to show seasonality at Spring Lake Dam and I-35, though Spring Lake Dam was notably higher than the long-term median (1.50 darters/m²) and more similar to its long-term upper quartile (4.38 darters/m²). At City Park, median and upper quartile densities have generally increased from fall 2023 to fall 2025, with both summary statistics exceeding the long-term upper quartile (6.63 darters/m²) during all sampling events. Upper quartiles were also generally higher from 2024–2025 at I-35 (5.50–12.75 darters/m²). That said, median density at I-35 decreased in fall 2025 (1.00 darters/m²) (Figure 12).

Since 2023, temporal trends in density suggest the prolonged drought that began in 2022 has not had a negative effect on fountain darters in the upper San Marcos River. Instead, 5-year trends indicate increasing densities over this period. The higher densities observed recently are likely, in part, due to improved habitat quality in certain areas. First, patches of bryophytes have continued to persist in City Park and are commonly prevalent within stands of aquatic macrophytes throughout the system. For example, densities in *Sagittaria* at Spring Lake Dam in 2025 were higher than this vegetation taxon's long-term median. This substantial increase can be best explained by greater structural complexity provided by increased amounts of intermixed bryophytes within sampled patches (10–25%) (Edwards and Bonner 2022; Sullivan et al., *in review*). Moreover, density patterns have steadily increased at City Park. Increased coverage of *Cabomba* is likely an important driver of this trend in addition to the persistence of independent patches of bryophytes available for sampling. Based on average annual coverage of *Cabomba* at City Park, percent change in coverage has been positive the past five years, which ranged from +2–79%, and had a geometric mean of 21%. As such, increased coverage of this highly suitable habitat type has possibly increased the carrying capacity at City Park (Dennis et al. 2006; Boettiger 2018) in recent years.

Given that suitable vegetation taxa sampled as part of this monitoring in 2025 are patchily distributed between large expanses of Texas wild-rice and open habitats, maintaining these high-quality patches will be essential for ensuring the fountain darter population in the San Marcos River remains in healthy condition during the ongoing drought. Using I-35 as an example, the decrease in median density experienced in fall 2025 was likely influenced by the absence of *Hygrophila* in this reach which has been shown to provide suitable habitat for fountain darters. That said, *Ludwigia*, a native taxon with similar physical structure, has begun to expand in areas where *Hygrophila* contracted which could curtail habitat loss in the future.

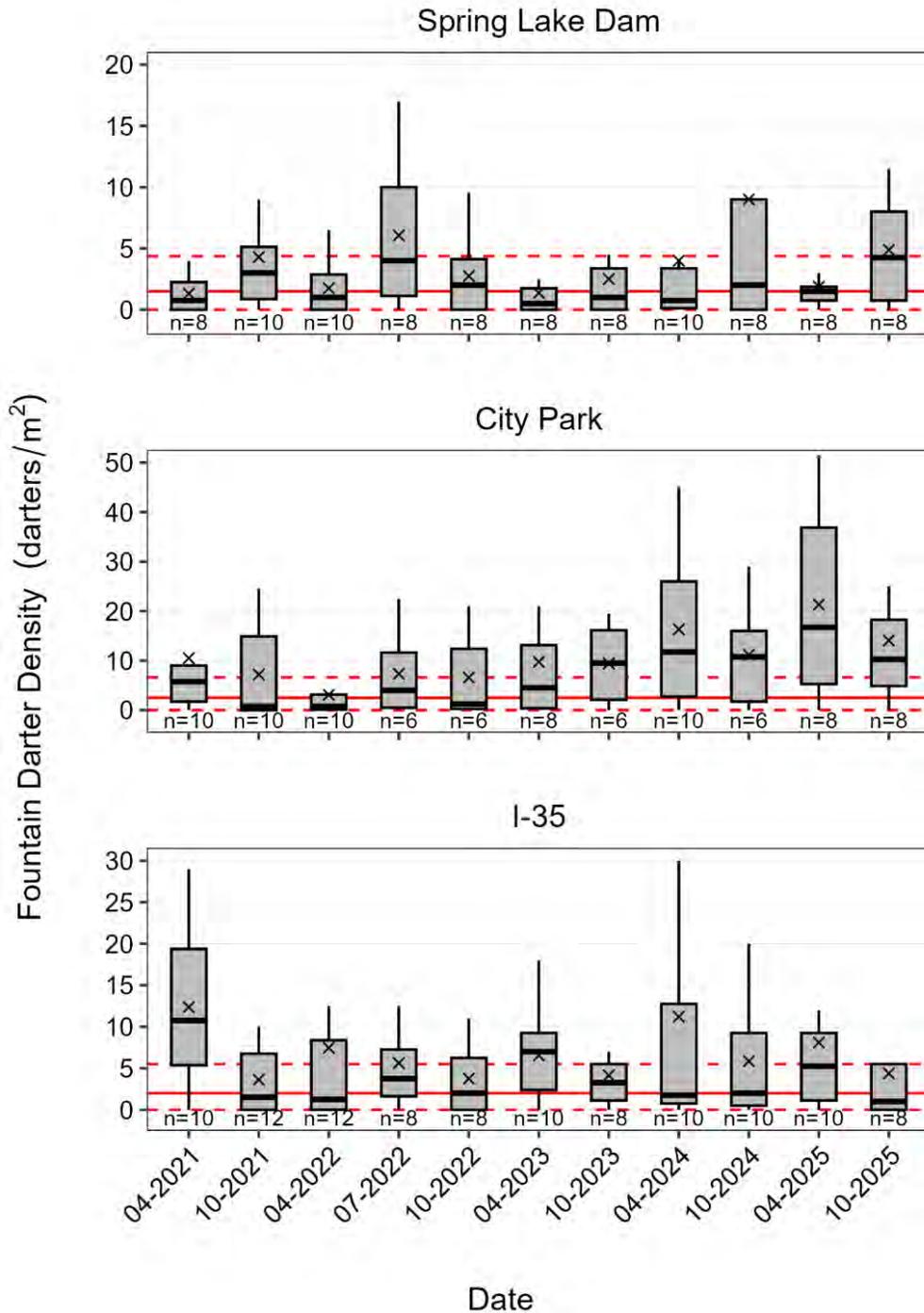


Figure 12. Boxplots displaying temporal trends in fountain darter density (darters/m²) among study reaches from 2021–2025 during drop-net sampling in the San Marcos River. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. The “n” values along the x-axes represent the number of drop-net samples in each category. Solid and dashed red lines denote long-term (2001–2025) medians and interquartile ranges, respectively.

Size structure and recruitment trends

Five-year trends in fountain darter size structure and recruitment mostly demonstrated consistent seasonal patterns. In general, smaller darters were more frequent following peak reproduction in spring. This pattern is illustrated by lower median lengths in spring (19–20 mm) and higher prevalence of recruits (46.5–59.5%). Patterns in size structure aligned with long-term trends in spring 2025. Median lengths were greater in summer (23–27 mm) and fall (24–29 mm) and recruitment levels were typically approximately 20%. Recruitment rates in spring increased from 2023 (46.5%) to 2025 (54.6%), and 2025 recruitment rates were also high during both summer (35.5%) and fall (26.7%) sampling events. Lack of overlap between summer 2025 and its long-term 95% confidence interval suggests that recruitment was meaningfully greater than expected (Figure 13).

Similar to five-year density trends, size structure and recruitment results suggest that the continuation of low flows did not alter size structure or suppress recruitment of darters. Instead, observed data suggest that recruitment was higher than expected in 2025, with recruitment rates in summer being meaningfully greater than historical trends. Recent trends in both recruitment rates and density also indicate survival of fountain darters has been relatively high across multiple age classes, and consistent patterns in size structure suggest fountain darter growth was not reduced in 2025. Previous studies on other riverine darters have shown reduced growth rates during periods of extreme low flows (Marsh-Matthews and Matthews 2010, Katz and Freeman 2015). Incongruency between these studies and the fountain darter can at least be partially explained by stable water temperatures being maintained in the upper San Marcos River, which have generally remained at suitable levels for the species despite prolonged low flows.

Potential mechanisms driving observed patterns in recruitment are poorly understood for fountain darters. Long-term monitoring data does illustrate higher density of recent recruits within complex vegetation (BIO-WEST 2024, 2025). Recent research also indicates that lower and more stable hydrologic conditions may enhance system-level population densities in the upper San Marcos River (Sullivan et al. *in review*). That said, the relative importance of density-independent versus density-dependent factors on the survival of recent recruits remains unclear. Despite this lack of mechanistic knowledge, elevated recruitment across all seasons suggests patches of suitable habitat that have expanded recently (e.g., *Cabomba* and bryophytes in City Park) are likely important for fountain darter population persistence in the San Marcos system (Duncan et al. 2016; Dunn and Angermeier 2019).

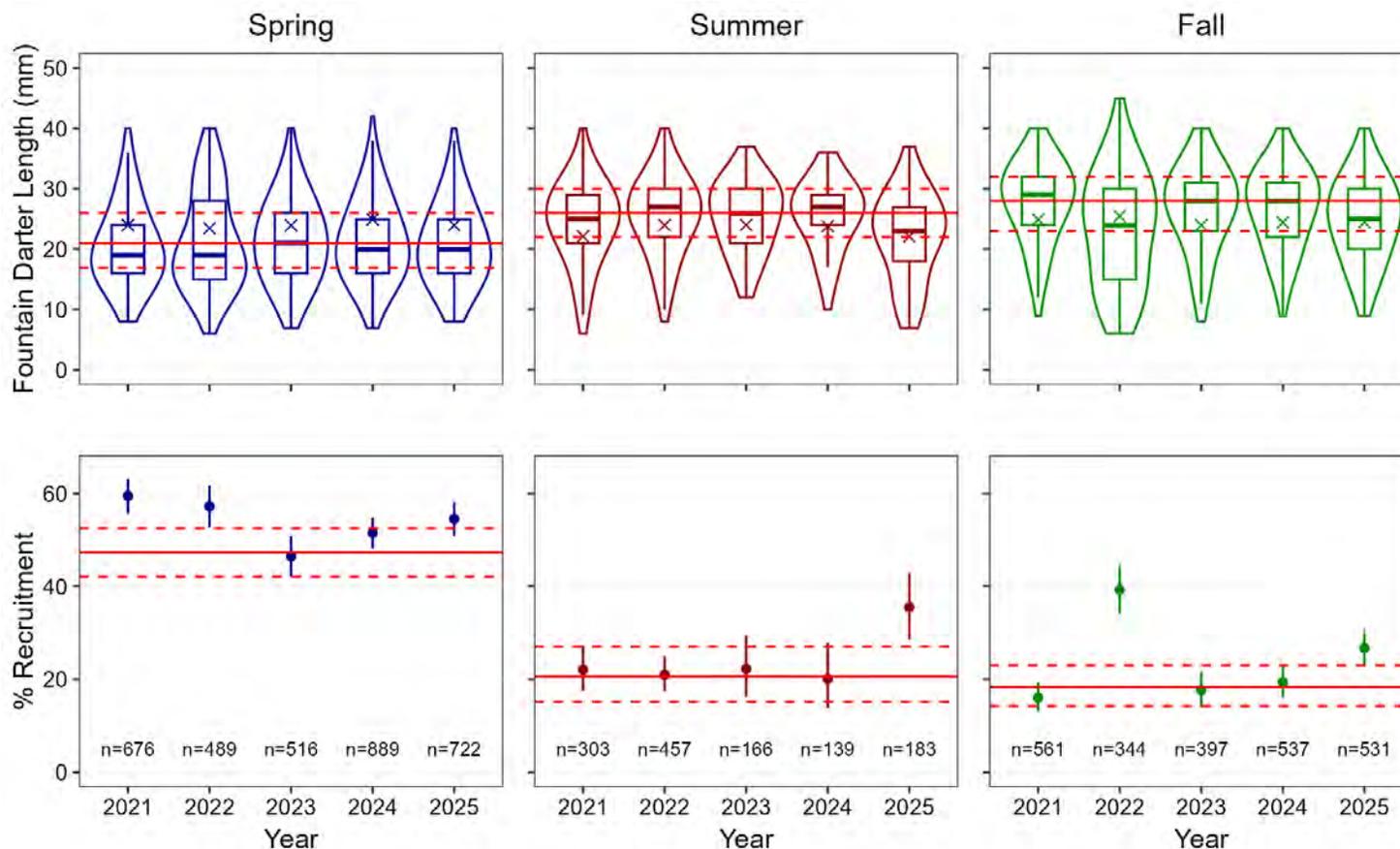


Figure 13. Seasonal trends of fountain darter size structure (mm; top row) and percent recruitment (bottom row) in the San Marcos River from 2021–2025. Spring and fall are based on drop-net and timed dip-net data in aggregate, whereas summer values are based on timed dip-net data only. Size structure is displayed with boxplots (median, quartiles, range) and violin plots (probability density; polygons outlining boxplots). The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. The “n” values along the x-axis of the top row represent the number of fountain darter length measurements in each distribution. Recruitment is the percent relative abundance (\pm 95% CI) of darters ≤ 20 mm. Long-term (2001–2025) values of size structure are represented by median (solid red line) and interquartile range (dashed red lines). Recruitment is compared to the long-term mean percentage (solid red line) and 95% CI (dashed red lines).

Habitat Use and Suitability

Density trends among vegetation taxa

Among the submerged aquatic vegetation taxa sampled in 2025, median densities were highest in bryophytes (25.25 darters/m²) and *Cabomba* (24.75 darters/m²). Taxa with intermediate median densities included *Sagittaria* (7.00 darters/m²) and *Hygrophila* (5.75 darters/m²), and the remaining habitats sampled exhibited relatively low median densities (0.00–2.75 darters/m²). Patterns in density deviated from historical trends for multiple taxa. Bryophyte density was higher, but data collected in 2025 encompassed 67% of historical observations. Both median and upper quartile estimates for *Cabomba* (24.75 and 40.38 darters/m², respectively) greatly exceeded 5-year (16.25 and 26.00 darters/m², respectively) and long-term (8.75 and 15.38 darters/m², respectively) estimates. Median density in *Sagittaria* was also higher compared to historical data (3.78–6.53 darters/m²), and the lower quartile in 2025 (7.00 darters/m²) was also notably larger. In contrast, the median and upper quartile for *Ludwigia* was much lower in 2025 (1.50 and 2.63 darters/m², respectively) compared to the other time periods (2.75–6.00 and 9.25–12.75 darters/m², respectively). Lastly, densities in *Hygrophila* differed from historical data, although only two drop-net samples were performed within this vegetation type. The remaining taxa aligned with historical expectations (Figure 14).

Current patterns of vegetation use continue to generally support previous research, showing that higher fountain darter densities occur within ornate vegetation providing complex physical structure (Alexander and Phillips 2012; Edwards and Bonner 2022; Sullivan et al. *in review*). As described in previous sections, substantial deviations in taxa-specific densities from historical data in *Cabomba* and *Sagittaria* were likely related to greater structural complexity provided by bryophytes, and for *Cabomba*, also due to increases in coverage at City Park and I-35 (Alexander and Phillips 2012; Dunn and Angermeier 2019; Edwards and Bonner 2022). Lower densities than expected in *Ludwigia*, which were all from samples at I-35, may be attributed to several factors related to the location of each sample within the river channel. Specifically, samples were either located within patches with higher current velocities in the middle of the channel or very shallow areas near the banks, which are both considered less suitable hydraulic conditions for fountain darters (Alexander and Phillips 2012).

Size structure among vegetation taxa

Boxplot summary statistics and violin plots showed that fountain darter size structure varied among vegetation taxa sampled in 2025, with the lowest median length occurring in *Ludwigia* (18 mm). Median lengths were approximately 22 mm for bryophyte, *Cabomba*, *Hygrophila*, and *Potamogeton*, 26 mm for *Sagittaria*, and 29 mm for *Hydrocotyle*. Recent recruits were observed in all habitat types, with minimum total lengths ranging from 9–15 mm. Size structure distributions for bryophyte, *Hygrophila*, *Ludwigia*, and *Potamogeton* were right-skewed, indicating these taxa mostly provided habitat for recent recruits. *Hydrocotyle* illustrated a left-skewed distribution, thus was mostly utilized by adults. The remaining taxa had approximately symmetrical or uniform size distributions, suggesting they provided habitat for multiple age classes (Figure 15). In summary, size structure among vegetation taxa in 2025 showed both similarities and differences compared to previous years. Differences are likely attributed to bryophyte prevalence, spatial variation in hydraulic conditions, or other stochastic processes that were not accounted for.

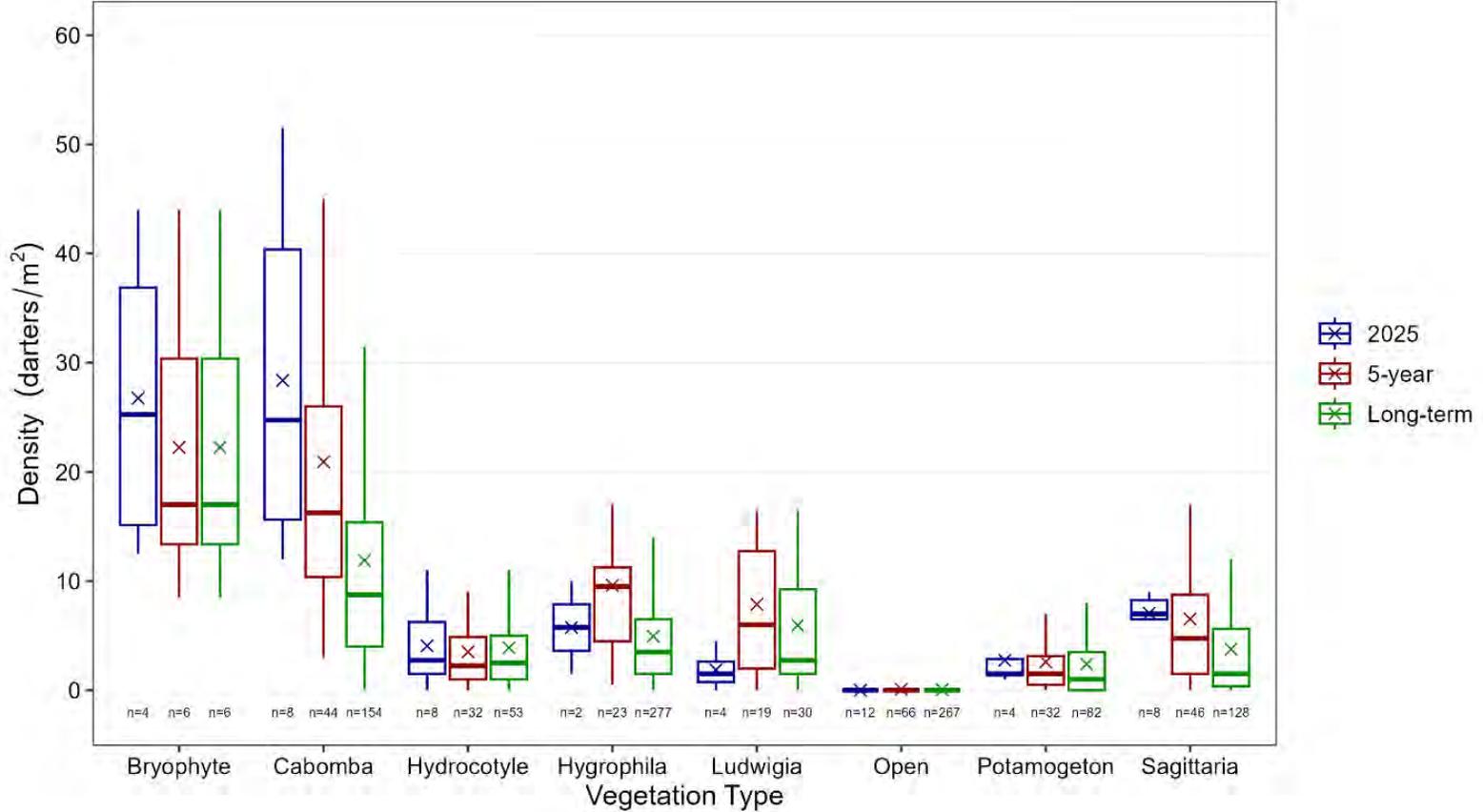


Figure 14. Boxplots displaying 2025, 5-year (2021–2025), and long-term (2001–2025) drop-net fountain darter density (darters/m²) among vegetation types in the San Marcos River. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. The “n” values along the x-axes represent drop-net sample sizes per group.

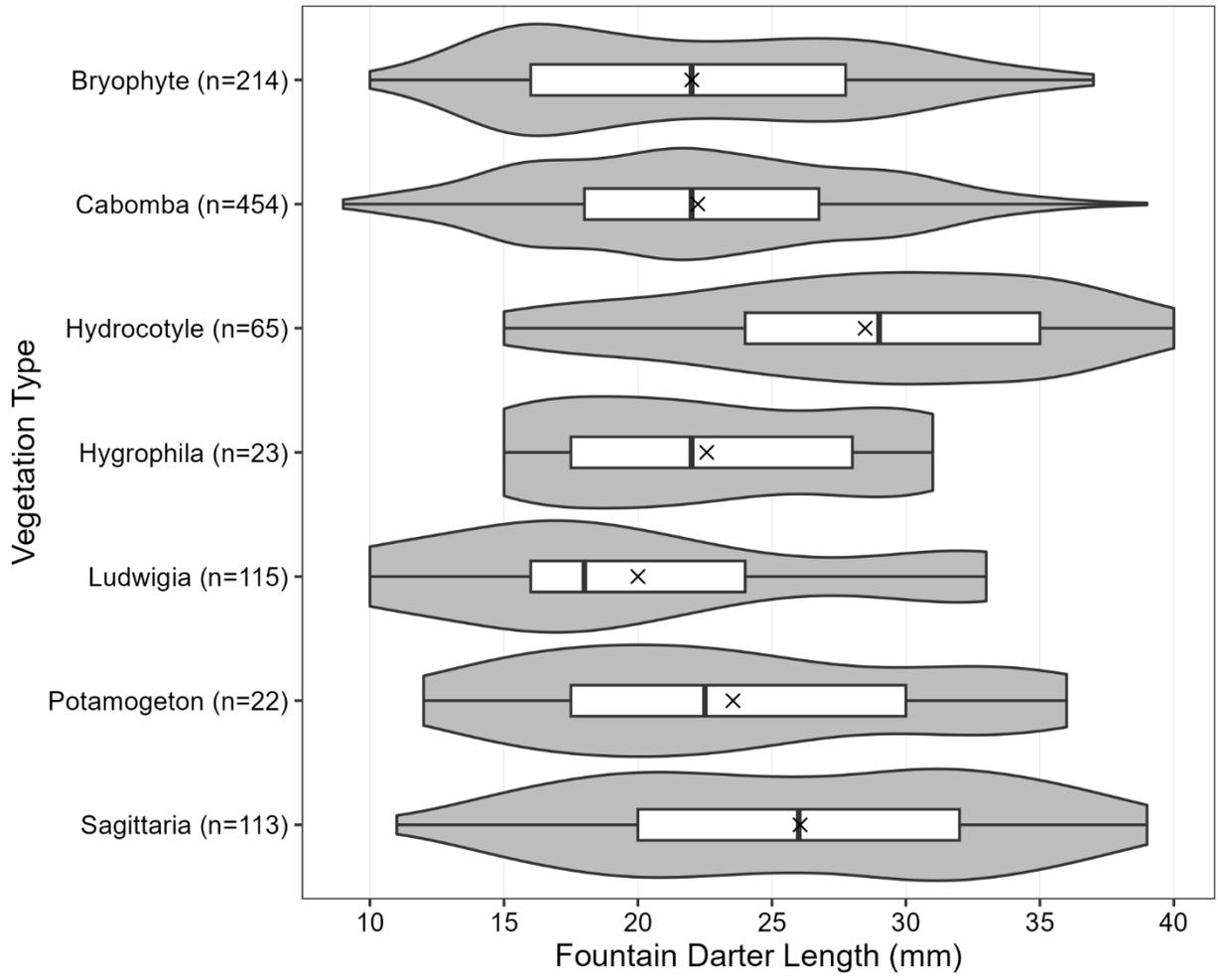


Figure 15. Boxplots and violin plots (grey polygons) displaying fountain darter lengths among dominant vegetation types during 2025 drop-net sampling in the San Marcos River. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range, and outliers beyond this are designated with solid black circles. The “n” values represent the number of fountain darter length measurements per vegetation type.

Habitat suitability

Estimated OHSI at Spring Lake Dam illustrated a strong correlation with trends at City Park ($r = 0.70$) and I-35 ($r = 0.78$), indicating spatially synchronous temporal trends in habitat suitability between these reaches. In contrast, OHSI trends at City Park and I-35 were weakly correlated ($r = 0.41$). From 2021–2022, all reaches generally illustrated declining trends in OHSI. Subsequent increases occurred in spring 2023. For the rest of the time-series, OHSI was generally stable at Spring Lake Dam and City Park, but illustrated a declining trend at I-35. Although OHSI at I-35 was below the long-term average for all of 2025, 95% confidence intervals overlapped with the long-term interval, suggesting uncertainty in the estimated trend. All confidence intervals overlapped with the long-term trend at Spring Lake Dam, whereas City Park continued to be below the lower boundary of its 95% confidence interval (Figure 16).

Changes in coverage of open non-vegetated habitats was strongly associated with changes in OHSI across all reaches. In other words, changes in total vegetation coverage, regardless of taxa, had a relatively large impact on reach-level habitat suitability for fountain darters. All vegetation taxa associated with changes in OHSI at Spring Lake Dam (*Hydrocotyle*, *Ludwigia*, *Potamogeton*, Texas wild-rice) illustrated a moderate to strong correlation with cover of open habitats. Habitat suitability at City Park began decreasing around 2013 and has remained below the lower boundary of its 95% confidence interval since 2016 (Appendix D, Figure D11). This is mainly driven by the increase in Texas wild-rice, which began in 2013 due to planting and restoration efforts associated with EAHCP implementation of conservation measures.

Occurrence of fountain darters is lower in Texas wild-rice than in previous taxa that occupied the City Park Reach (e.g., non-native *Hydrilla*). Changes in OHSI were similarly influenced by Texas wild-rice at I-35 the past five years. The decrease in OHSI observed at I-35 in 2025 was mostly influenced by reductions in *Hygrophila*, which exhibited coverages at or near zero in the spring and fall. That said, declines in coverages in bryophytes and *Hydrocotyle* also appeared to have a moderate impact on the changes in suitability at I-35.

Drop-net results demonstrated fountain darters are consistently spatially clustered within small patches of highly suitable habitat with complex vegetation. However, vegetation mapping demonstrated that Texas wild-rice, which has lower fountain darter suitability, currently occupies 60 – 95% of total vegetation coverage in the study reaches, resulting in low OHSI values when compared to long-term data, particularly at City Park. These larger areas of less suitable vegetation may provide important habitat to fulfill life history requirements by allowing for dispersal corridors that facilitate connectivity between patches of higher suitability (Fagan 2002). Wholistically, this suggests management strategies should consider expanding coverages of complex taxa while maintaining diverse vegetation assemblages to enhance resistance and resilience during and after environmental disturbances (Duncan et al. 2016, Dunn and Angermeier 2018).

Although increases in intermixed bryophytes resulted in increased fountain darter densities from 2023–2025, this is not captured by the OHSI, which assigns long-term taxa-specific suitability criteria based on dominant vegetation. For example, a patch of *Sagittaria* with intermixed bryophytes (and thus high fountain darter density, as seen recently at Spring Lake Dam) would be assigned the long-term *Sagittaria* suitability criteria for OHSI calculations. As a result, the current OHSI framework does not accurately reflect the increased habitat structure at these

microhabitat spatial resolutions. Increasing model complexity for OHSI estimates by incorporating other environmental factors could provide better realizations of spatial variation in habitat suitability, both within and among reaches.

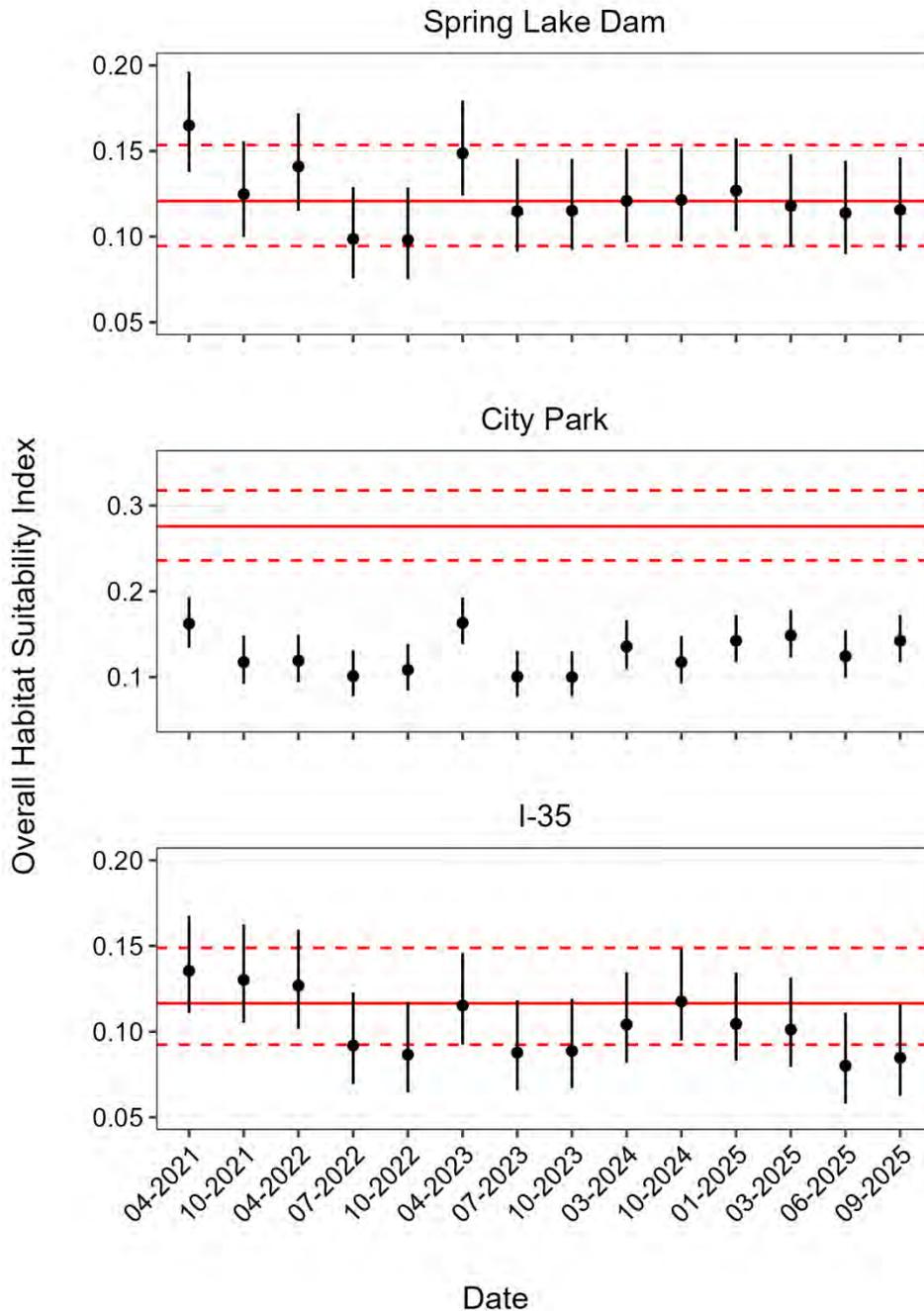


Figure 16. Overall Habitat Suitability Index (OHSI) ($\pm 95\%$ CI) from 2021–2025 among study reaches in the San Marcos River. Solid and dashed red lines denote means of long-term (2003–2025) OHSI and 95% CI, respectively.

Fish Community

In 2025, a total of 9,531 fishes represented by 11 families and 32 unique species were observed during seining and scuba activities in the spring and fall. At Spring Lake, the three most abundant species were Texas Tetra (*Astyanax argentatus*; 33.1%), Guadalupe Roundnose Minnow (*Dionda nigrotaeniata*; 30.5%), and Mosquitofish (*Gambusia* sp.; 13.4%) (Appendix E, Table E2). Upper River was dominated by Largespring Gambusia (*Gambusia geiseri*; 72.9%) with all other species each representing less than 6% of the community assemblage. Guadalupe Roundnose Minnow dominated Middle River (33.9%) followed by fountain darter (16.2%) and Texas Tetra (13.1%). Pelagic minnows were among the dominant species at Lower River and included Mimic Shiner (*Paranotropis volucellus*; 24.4%) and Texas Shiner (*Notropis amabilis*; 23.5%). Fountain darter was among the top five most abundant species across each segment, ranging from 4.2% at Spring Lake to 16.2% at Middle River.

Patterns in species richness and diversity varied between and within study segments. In 2025, species richness was generally stable at Spring Lake and decreased from spring to fall at Upper River, Middle River, and Lower River (Figure 17). Species richness was lowest at Spring Lake and highest at Lower River which aligns with data from the previous four years. Diversity of fishes was also highest at Lower River in 2025 but was lowest at Upper River. Furthermore, species richness and diversity at Lower River have generally increased during the monitoring period (Appendix E, Figure E13). Diversity at Upper River has declined since spring 2024, and fall 2025 diversity was among the lowest observed over the monitoring period (Appendix E, Figure E13). Middle River displayed intermediate species richness and diversity.

In 2025, richness of spring fishes ranged from 4 species at Spring Lake to 7 species at Middle River (Figure 18). Total number of spring fish species declined from spring to fall at Upper River and Lower River. Over the past five years, spring fishes species richness was generally more stable at Spring Lake and Middle River. Relative density of spring fishes was high and stable at Spring Lake, Upper River, and Middle River in 2025. Spring fishes relative density has become more stable at Middle River since 2023 which is likely a result of sustained low flows. Relative density of spring fishes was lowest at Lower River though it increased from spring to fall 2025 and accounted for approximately 50% of the community. Decreases in relative density of spring fishes with increasing distance from springflow influence is well documented (Hubbs 1995; Kollaus and Bonner 2012; Craig et al. 2016).

Temporal trends in fountain darter density from 2020–2025 were based on microhabitat sampling data. At Spring Lake, median density increased from below the long-term median density in spring to above in fall (Figure 19). Variation in density (i.e., interquartile range) has decreased since spring 2022 when the upper quartile was substantially higher, though variation increased in 2025 compared to 2023-2024. At Middle River, median density has been higher since 2024. Microhabitat median density was above long-term expectations in spring and fall 2024 with greater variability in the spring. In 2025, median densities in spring and fall were considerably higher than the long-term median. Lastly, median fountain darter density in 2025 at Upper River and Lower River continued to show typical historical patterns with densities at or close to zero (Figure 19).

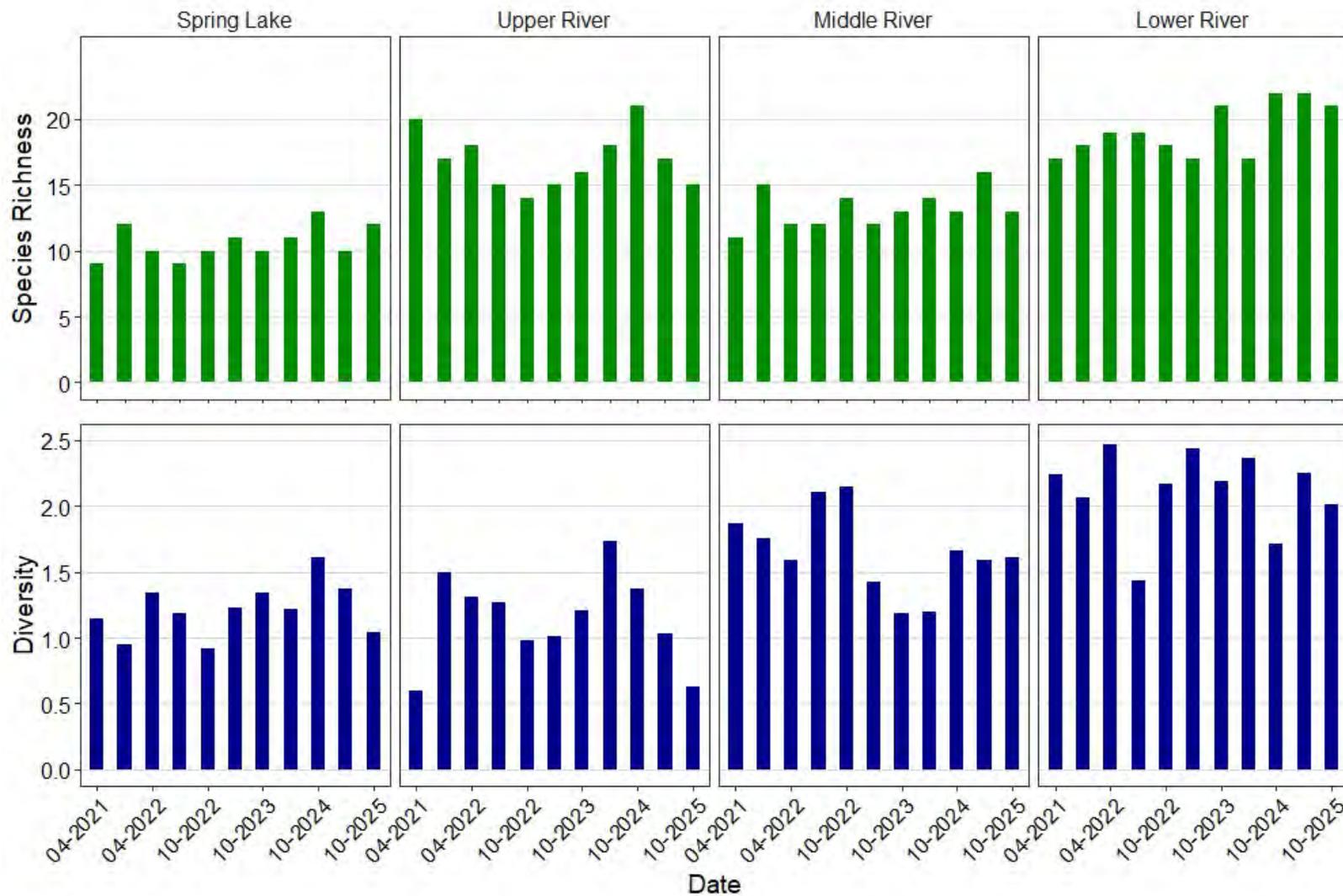


Figure 17. Bar graphs displaying species richness (top row) and diversity (bottom row) from 2021–2025 based on all three fish community sampling methods in the San Marcos Springs/River.

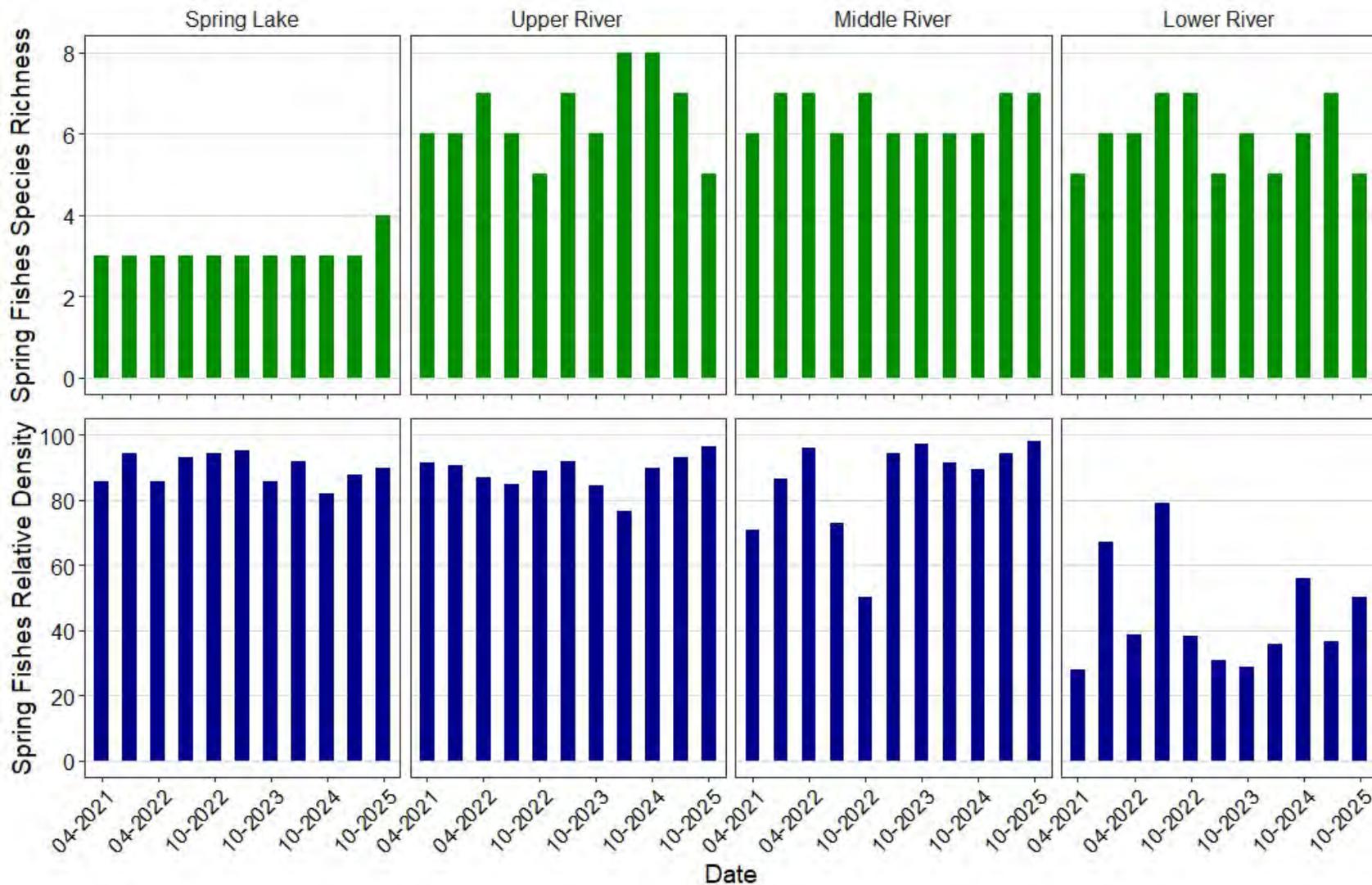


Figure 18. Bar graphs displaying spring fish richness (top row) and relative density (RD; %) (bottom row) from 2021–2025 based on all three fish community sampling methods in the upper San Marcos Springs/River.

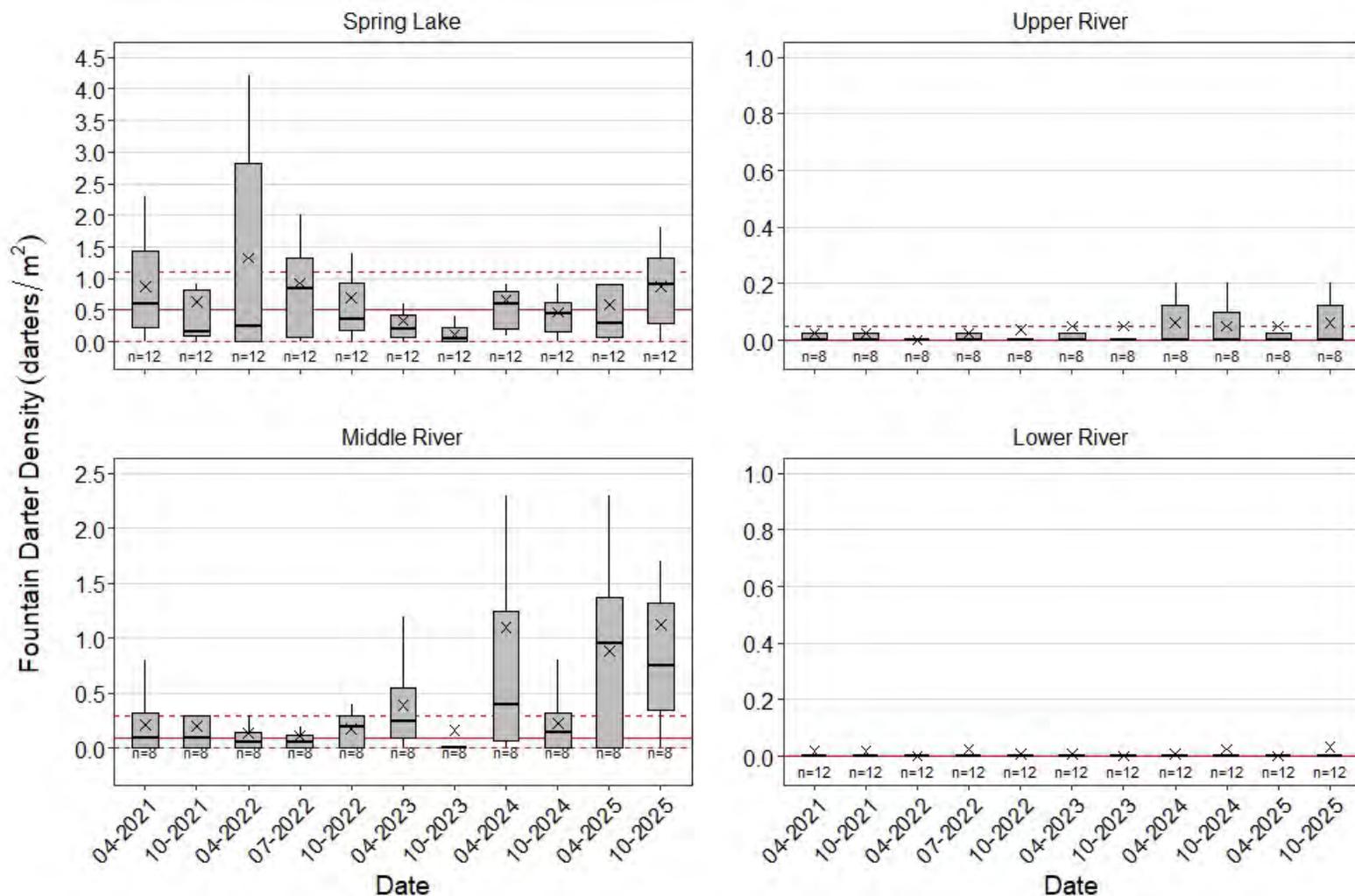


Figure 19. Boxplots displaying temporal trends in fountain darter density (darters/m²) among study segments from 2021–2025 during fish community microhabitat sampling in the San Marcos Springs/River. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. The “n” values along the x-axes represent the number of microhabitat samples per category. Solid and dashed red lines denote long-term (2014–2025) medians and interquartile ranges, respectively.

Macroinvertebrates

Benthic Macroinvertebrate Rapid Bioassessment

Benthic macroinvertebrate rapid bioassessment data was collected during both the spring and fall sampling events in 2025 (raw data presented in Appendix F). At Spring Lake, habitats sampled this year included emergent vegetation, root wads, and sand. Similar habitats were sampled at City Park, with the addition of debris jams. Cobble/gravel habitats were sampled at Spring Lake Dam and I-35 in addition to what was sampled at City Park. No supplemental snag samples were taken. A total of 1,392 individual macroinvertebrates (696 in both spring and fall), representing 39 and 38 unique taxa were sampled in spring and fall, respectively. Metric scoring criteria for calculating the B-IBI can be found in Table 6. The cumulative scores and corresponding aquatic-life-use designations are displayed in Figure 20. Altogether, 49 unique taxa were represented among all samples from 2025. Overall scores and aquatic-life-use designations in 2025 generally aligned with the previous four years and indicate stable patterns among benthic macroinvertebrate communities. Scores at all four sites were consistent across both seasons. Spring Lake was described as “Intermediate”, Spring Lake Dam was described as “High”, and I-35 was described as “High”. Aquatic-life-use at City Park was “Limited” during both seasons (Figure 20).

Table 6. Metric value scoring ranges for calculating the Texas RBP B-IBI (TCEQ 2014).

METRIC	SCORING CRITERIA			
	4	3	2	1
Taxa richness	>21	15–21	8–14	<8
EPT taxa abundance	>9	7–9	4–6	<4
Biotic index (HBI)	<3.77	3.77–4.52	4.56–5.27	>5.27
% Chironomidae	0.79–4.10	4.11–9.48	9.49–16.19	<0.79 or >16.19
% Dominant taxon	<22.15	22.15–31.01	31.02–39.88	>39.88
% Dominant FFG	<36.50	36.50–45.30	45.31–54.12	>54.12
% Predators	4.73–15.20	15.21–25.67	25.68–36.14	<4.73 or >36.14
Ratio of intolerant: tolerant taxa	>4.79	3.21–4.79	1.63–3.20	<1.63
% of total Trichoptera as Hydropsychidae	<25.50	25.51–50.50	50.51–75.50	>75.50 or no Trichoptera
# of non-insect taxa	>5	4–5	2–3	<2
% Collector–gatherers	8.00–19.23	19.24–30.46	30.47–41.68	<8.00 or >41.68
% of total number as Elmidae	0.88–10.04	10.05–20.08	20.09–30.12	<0.88 or >30.12

Spring Lake and City Park scored lower than the other sites, likely due to differences in available habitats. Lower scores were expected at Spring Lake as these lentic communities are naturally different compared to swift flowing “least-disturbed reference streams”. At City Park, lower scores compared to Spring Lake Dam and I-35 were also not surprising. Of the three riverine sites, City Park has consistently scored the lowest over the past five years, likely due to differences in habitat and recreation. Lotic habitats at City Park consist of runs, whereas lotic habitats at Spring Lake Dam and I-35 consist of riffles with cobble and gravel substrates more similar to reference streams. Higher scores at Spring Lake Dam and I-35 are best explained by greater prevalence of fluvial specialists, resulting in greater taxa diversity overall. Additionally, most reference streams do not exhibit the stenothermal conditions present within the upper San Marcos River which may contribute to differing community composition. As such, reach-level patterns over time are more important than the level of score. Continued monitoring will create a

robust reference dataset and allow for the development of scoring criteria specific to this unique ecosystem, providing a more accurate realization of ecological health through time.

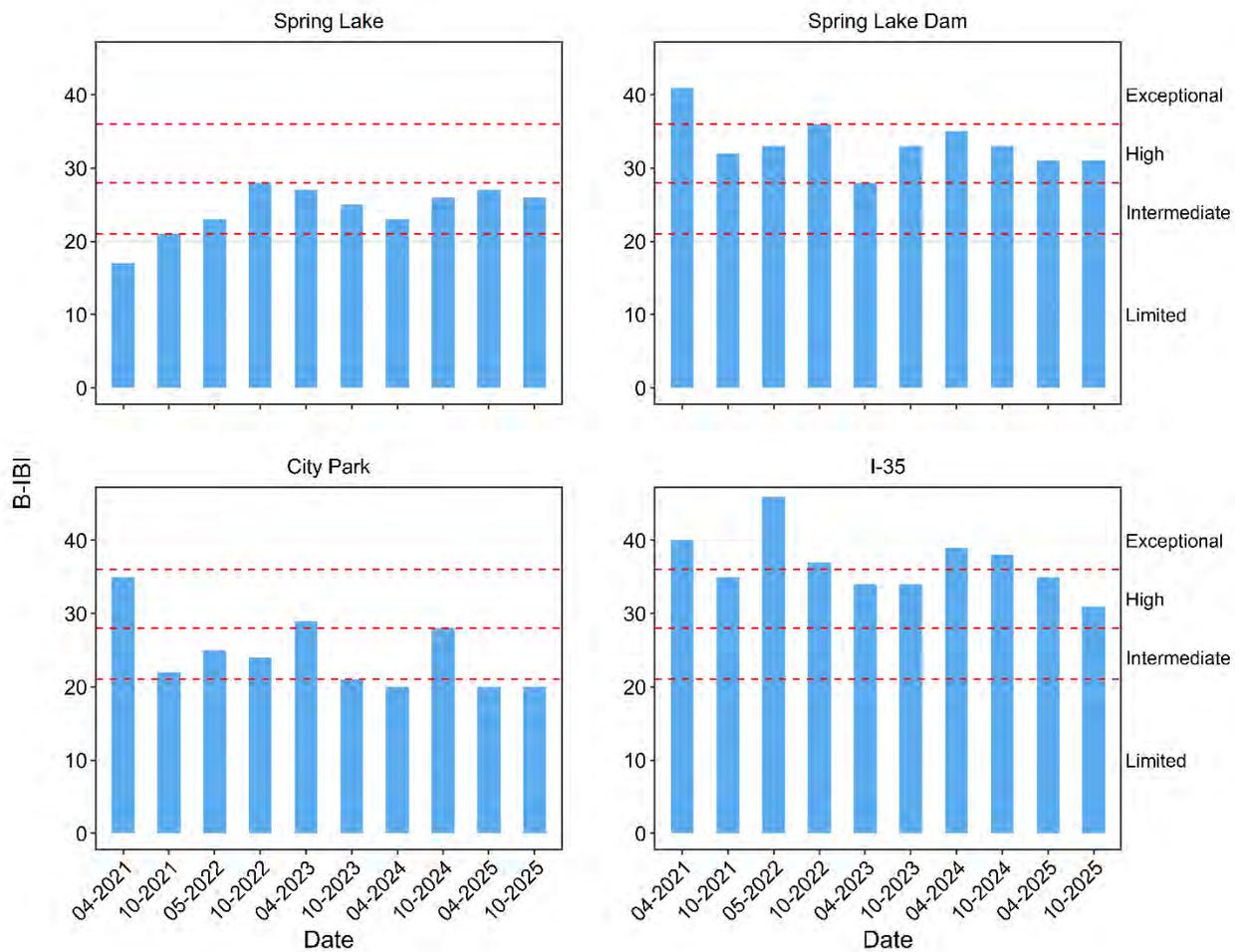


Figure 20. Benthic macroinvertebrate Index of Biotic Integrity (B-IBI) scores and aquatic-life-use categories from 2021–2025 in the San Marcos Springs/River.

San Marcos Salamander

A total of 466 salamanders were observed in spring (210 salamanders) and fall (256 salamanders) during routine monitoring events in 2025. Salamander densities ranged from 1.4–25.3 salamanders/m² (Figure 21). Salamander density increased from spring to fall at Hotel and Spring Lake Dam sites but decreased at Riverbed. At Hotel, salamander densities in both spring (18.4 salamanders/m²) and fall (25.3 salamanders/m²) were greater than long-term expectations (15.6 ± 1.6 salamanders/m² and 14.9 ± 2.0 salamanders/m², respectively). Density observations in spring and fall 2025 at Hotel fell outside the confidence interval boundary, suggesting meaningful differences. At Riverbed, spring salamander density (14.9 salamanders/m²) was similar to the long-term average (14.5 ± 1.8 salamanders/m²). Fall Riverbed salamander density (10.9 salamanders/m²) was also similar to the long-term average (12.5 salamanders/m² ± 1.6), though it was at the lower end of the expected density range. At Spring Lake Dam in 2025, densities in spring (1.41 salamanders/m²) and fall (2.64 salamanders/m²) were lower than the respective long-term averages (5.0 ± 1.0 and 5.8 ± 1.6; Figure 21).

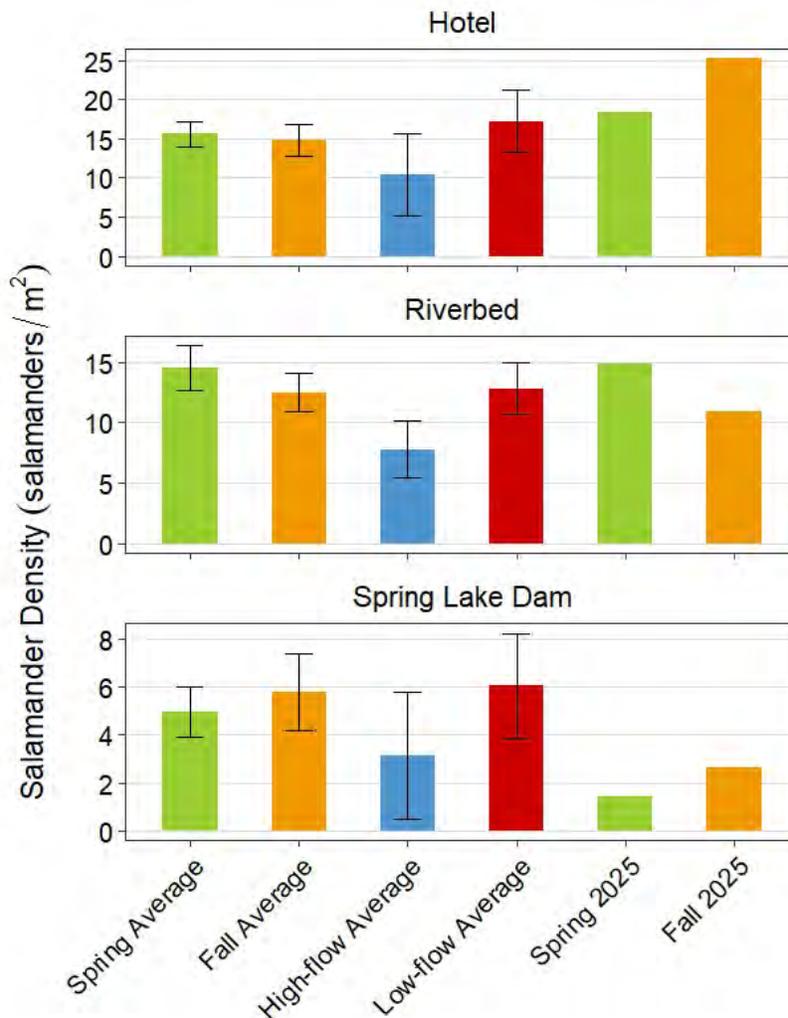


Figure 21. San Marcos salamander density (salamanders/m²) among sites in 2025, with the long-term (2001–2025) average for each sampling event. Error bars for long-term averages represent 95% confidence intervals.

Five-year trends at Hotel demonstrated decreasing densities beginning in spring 2021, followed by a noticeable increase during the last two events in 2022. After this increase, densities in 2023 decreased again and generally remained low through fall 2024. In 2025, densities began increasing again. At Riverbed, density was generally consistent with a few exceptions. Density was higher during spring 2022 and 2023. Density also increased from fall 2023, the lowest density observed over the past five years, to more typical levels in 2024. However, a declining pattern has emerged in 2025. Density at Spring Lake Dam demonstrated a cyclical pattern in which density generally decreased from spring to fall until 2025 when density increased from spring to fall (Figure 22). Subsequent monitoring will help provide insights on how salamander densities change following the continued low flows in fall 2025.

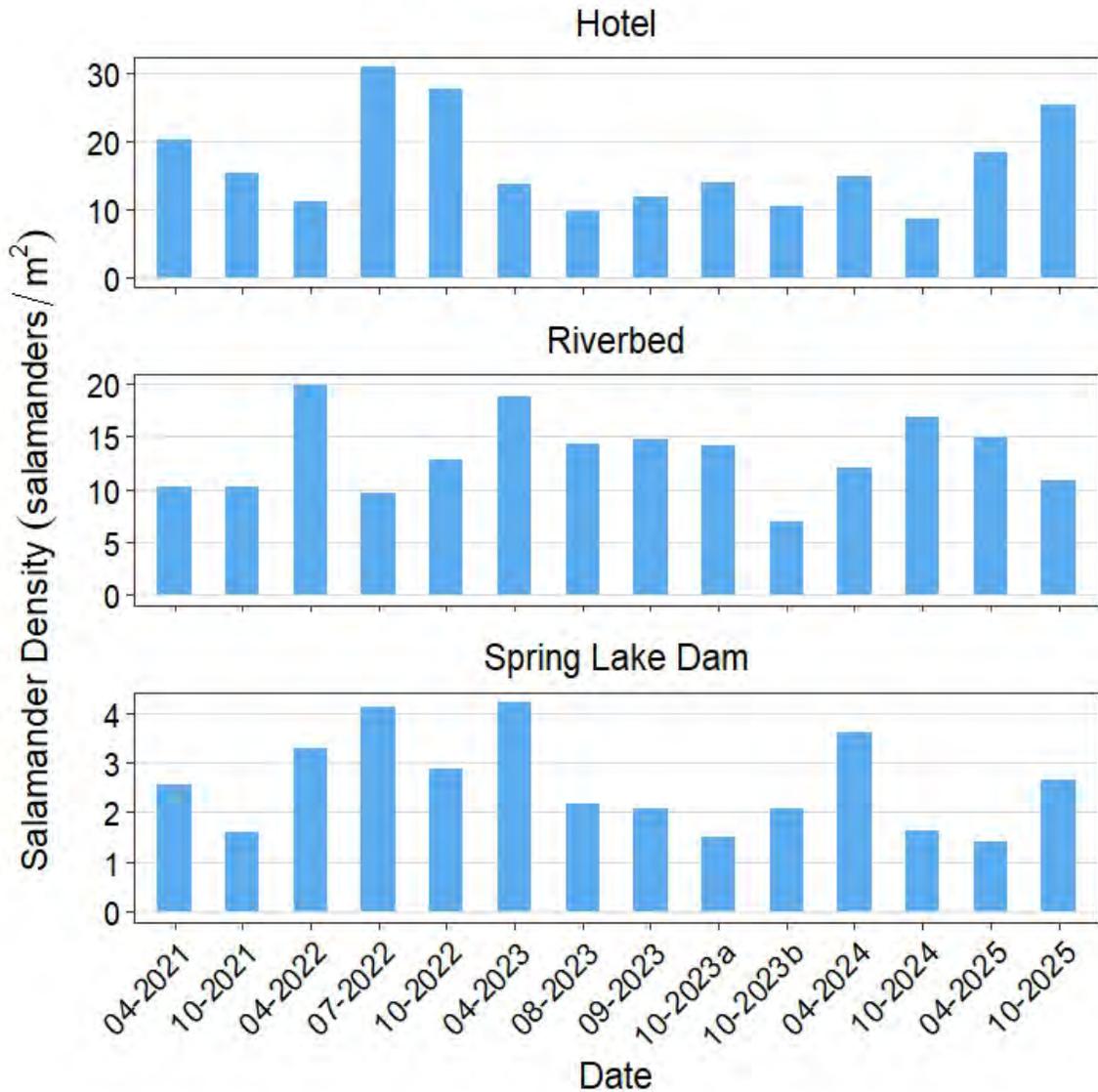


Figure 22. San Marcos salamander density (salamanders/m²) among sites from 2021–2025 in the San Marcos Springs/River.

CONCLUSION

The 2025 biological monitoring in the San Marcos Springs/River ecosystem indicated a continuation of overall declining trends in discharge and variable trends in Covered Species population metrics. Based on monthly analysis of daily mean discharge, the system was near or below 10th percentile flow conditions for a majority of the year. Reaches closer to springs (i.e., Spring Lake) continued to demonstrate low variation in water temperature, while reaches farther downstream (i.e., Wastewater Treatment Plant) demonstrated higher variation. Fountain darter egg and larval production temperature thresholds were exceeded in greater frequency and duration throughout the summer at these lower stations. Larval production threshold exceedance occurred more frequently in 2025 than in the previous four years at downstream reaches, whereas the egg production threshold was exceeded less in 2025 compared to the previous four years across all reaches. Despite the low-flow conditions and increases in temperature during the summer, impacts to fountain darter population metrics were not observed.

In contrast to 2024, total aquatic vegetation coverage increased from spring to fall at Spring Lake Dam and I-35 but decreased at City Park. Texas wild-rice maintained coverage well above pre-HCP levels. As in recent years, Texas wild-rice continues to dominate the vegetation community within the study reaches, representing 60 - 95% of all aquatic vegetation coverage. Reduced river discharge led to some Texas wild-rice becoming dewatered and outcompeted by terrestrial vegetation, yet Texas wild-rice survived and expanded in deeper areas. This expansion of vegetation with low fountain darter suitability might be contributing to a slight reduction in fountain darter occurrence within vegetated habitats in recent years, as documented by random station dip-netting. Despite this, improved fountain darter habitat quality was observed in persistent patches of bryophytes, macrophytes with intermixed bryophytes, and expansion of complex slackwater tolerant species, which contributed to higher fountain darter density estimates. For example, bryophytes increased structural complexity of *Sagittaria* at Spring Lake Dam producing higher than expected densities. Additionally, *Cabomba* has established and expanded at City Park in recent years which contributed to the increasing trend in fountain darter densities. San Marcos salamander densities were variable among sites in 2025, though densities at Hotel and Riverbed either approximated or were greater than long-term expectations. At Spring Lake Dam, San Marcos salamanders continued to persist despite reductions in habitat as Texas wild-rice expanded. No apparent patterns in fish assemblage composition, spring fishes, or macroinvertebrates were noted.

In summary, biological monitoring throughout 2025 captured the response of the San Marcos Springs/River aquatic community to a fourth year of sustained low flows. While Covered Species showed variable responses, results indicated that the San Marcos Springs/River was resilient to the low-flow conditions. Despite declines in flow throughout the year, Covered Species habitat and populations have remained resilient. Subsequent monitoring efforts will provide opportunities to better understand the dynamics of this complex ecological system and how it responds to future hydrologic conditions.

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APPENDIX A: CRITICAL PERIOD MONITORING SCHEDULE

SAN MARCOS RIVER/SPRINGS Critical Period Low-Flow Sampling – Schedule and Parameters

FLOW TRIGGER (+ or - 5 cfs)	PARAMETERS
120 cfs	Wild-Rice vulnerable stands - Every 5 cfs decline (maximum weekly)
100 cfs	Full Sampling Event
100 - 85 cfs	Habitat Evaluations - Every 5 cfs decline (maximum weekly)
85 cfs	Full Sampling Event
85 - 60 cfs	Habitat Evaluations - Every 5 cfs decline (maximum weekly)
60 cfs	Full Sampling Event
60 - 25 cfs	Habitat Evaluations - Every 5 cfs decline (maximum weekly)
25 cfs	Full Sampling Event
25 - 0 cfs	Habitat Evaluations - Every 5 cfs decline (maximum weekly)
10 - 0 cfs	Full Sampling Event
RECOVERY	
25 - 85 cfs	Full Sampling Event (dependent on flow stabilization)
85 - 125 cfs	Full Sampling Event (dependent on flow stabilization)

PARAMETER DESCRIPTION

Wild-Rice Monitoring	Physical changes vulnerable stands
Fall Sampling Event	Aquatic Vegetation Mapping - including Texas Wild-Rice Fountain Darter Sampling Drop Net, Dip net (Presence/Absence), and Visual Parasite evaluations Fish Community Sampling Salamander Sampling - Visual Fish Sampling - Exotics/Predation (85 cfs and below) Water Quality - Suite I and Suite II
Habitat Evaluations	Photographs

SAN MARCOS RIVER/SPRINGS Species-Specific Triggered Sampling

FLOW RATE (+ or - 10 cfs)	SPECIES	FREQUENCY	PARAMETERS
≤80 cfs or ≥ 50 cfs continuing until flow rate restores to ≥100 cfs	Fountain Darter	Every other month	Aquatic vegetation mapping at Spring Lake Dam reach, City Park reach, and IH-35 reach
≤80 cfs or ≥ 50 cfs continuing until flow rate restores to ≥100 cfs	Fountain Darter	Every other month	Conduct dip net sampling/visual parasite evaluations at 50 sites in high quality habitat to include fifteen (15) sites in Spring Lake Dam reach; twenty (20) sites in City Park reach, and fifteen (15) sites in IH-35 reach.
≤50 cfs	Fountain Darter	Monthly	Aquatic vegetation mapping at Spring Lake Dam reach, City Park reach, and IH-35 reach
≤50 cfs	Fountain Darter	Weekly	Conduct dip net sampling/visual parasite evaluations at 50 sites in high quality habitat to include fifteen (15) sites in Spring Lake Dam reach; twenty (20) sites in City Park reach, and fifteen (15) sites in IH-35 reach.
≤80 cfs or ≥ 50 cfs	San Marcos Salamander	Every other week	Salamander surveys (SCUBA and snorkel) will be conducted at the Hotel Area, Riverbed area, and eastern spillway of Spring Lake Dam
<50 cfs	San Marcos Salamander	Weekly	Salamander surveys (SCUBA and snorkel) will be conducted at the Hotel Area, Riverbed area, and eastern spillway of Spring Lake Dam
100 cfs	Texas Wild-Rice	Once	Mapping of Texas Wild-Rice coverage for the entire San Marcos River will be conducted
≤100 cfs or ≥60 cfs	Texas Wild-Rice	Every other week	Physical parameters of Texas Wild-Rice will be monitored in designated "vulnerable" areas
<80 cfs	Texas Wild-Rice	Monthly	Mapping of Texas Wild-Rice coverage for the entire San Marcos River will be conducted
<80 cfs	Texas Wild-Rice	Weekly	Physical visual observations of Texas Wild-Rice will occur

**APPENDIX B: LOW-FLOW CRITICAL PERIOD
WATER QUALITY SAMPLING**

Water Quality Sampling Results

Table B1. Water quality sampling at select stations during Low-flow Critical Period Monitoring in April 2025. Measurements were taken at the middle of the water-column.

Site	Date	Time	Temp (°C)	SpCond (µs/cm)	pH	D.O. (mg/L)	Depth (ft)	Velocity (ft/s)	Weather Conditions
Sink Creek	4/14/2025	8:36	20.8	631	7.22	2.23	1.0	0.00	Partly Cloudy, 67 (F), clear water
DS SM Springs Dr	4/14/2025	8:48	21.1	646	7.57	5.12	2.3	0.02	Partly Cloudy, Windy, 68 (F), clear water
Hotel	4/14/2025	9:02	22.0	657	5.10	5.10	1.8	0.03	Partly Cloudy, Windy, 68 (F), clear water
Submarine	4/14/2025	9:19	21.7	646	7.04	4.45	4.5	0.00	Partly Cloudy, Windy, 69 (F), clear water
Boat Dock	4/14/2025	9:10	21.6	644	7.19	4.45	2.6	0.00	Partly Cloudy, Windy, 68 (F), clear water
Boardwalk	4/14/2025	9:34	21.2	657	7.38	4.47	2.7	0.00	Partly Cloudy, Windy, 70 (F), clear water
Landing Dock	4/14/2025	9:27	21.7	567	7.30	6.43	1.0	0.01	Partly Cloudy, Windy, 69 (F), clear water
Above Chute	4/14/2025	9:58	22.1	668	7.24	6.17	1.2	0.01	Partly Cloudy, Windy, 71 (F), clear water
Below SLD	4/14/2025	10:24	22.2	658	7.49	8.02	0.7	1.57	Sunny, Windy, 71 (F), clear water
Above SLD	4/14/2025	10:36	22.2	662	7.25	6.78	1.5	0.28	Sunny, Windy, 71 (F), clear water
Below Chute	4/14/2025	10:14	22.1	660	7.41	8.18	2.4	0.47	Sunny, Windy, 71 (F), clear water
Sessom Creek	4/14/2025	10:08	21.9	684	7.35	6.19	0.3	0.88	Partly Cloudy, Windy, 71 (F), clear water
City Park	4/14/2025	11:02	22.2	664	7.53	8.74	3.1	0.08	Sunny, Windy, 74 (F), clear water
Rio Vista	4/14/2025	11:18	22.4	665	7.63	9.18	2.0	0.07	Sunny, Windy, 74 (F), clear water
I-35	4/14/2025	11:32	22.3	662	7.75	9.05	2.5	0.40	Sunny, Windy, 76 (F), clear water
TI Artificial	4/14/2025	11:50	21.8	663	7.79	7.19	1.4	0.03	Sunny, Windy, 78 (F), clear water
TI Natural	4/14/2025	11:57	22.9	659	7.92	8.75	1.3	0.12	Sunny, Windy, 78 (F), clear water
Wastewater Plant	4/14/2025	12:34	22.5	651	7.96	8.69	2.9	0.32	Sunny, Windy, 80 (F), clear water

Table B2. Lab results from water quality grab samples collected at select stations during Low-flow Critical Period Monitoring on April 14, 2025. The unit for each parameter is milligrams per liter (mg/L). ND for each parameters denotes that it was not detectable.

Site	Nitrate as N	Total N	Ammonia	Total P	Alkalinity	Total Suspended Solids
Sink Creek	0.412	<1.15U	0.072	0.0127	254	3.89
DS SM Springs Dr	0.252	<1.15U	0.142	<0.0100U	262	5.91
Hotel	1.38	1.38	<0.0400U	<0.0100U	259	<1.00U
Submarine	1.18	1.18	<0.0400U	<0.0100U	263	3.79
Boat Dock	1.14	<1.15U	<0.0400U	<0.0100U	254	2.63
Boardwalk	0.625	<1.15U	<0.0400U	<0.0100U	253	6.21
Loading Dock	1.36	1.36	<0.0400U	<0.0100U	252	<1.00U
Above Chute	1.36	1.36	<0.0400U	<0.0100U	256	1.51
Below SLD	1.25	1.25	<0.0400U	<0.0100U	258	<1.00U
Above SLD	1.28	1.28	<0.0400U	<0.0100U	260	<1.00U
Below Chute	1.41	1.41	<0.0400U	<0.0100U	260	<1.00U
Sessom Creek	1.38	1.38	<0.0400U	0.0117	253	1.65
City Park	1.34	1.34	<0.0400U	<0.0100U	260	1.05
Rio Vista	1.31	1.31	0.079	<0.0100U	264	1.58
I-35	1.32	1.32	0.041	<0.0100U	257	2.21
TI Artificial	1.24	1.24	0.044	<0.0100U	261	4.37
TI Natural	1.28	1.28	<0.0400U	<0.0100U	261	4.21
Wastewater Plant	1.24	1.24	<0.0400U	0.0105	253	7.63

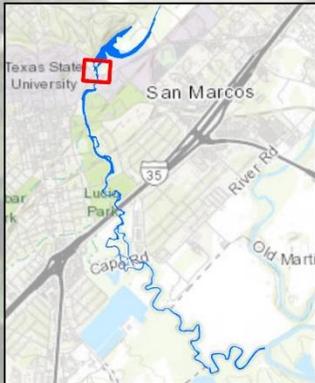
APPENDIX C: AQUATIC VEGETATION MAPS

Long-term Biological Goals Study Reaches

San Marcos River

San Marcos, Texas SPRING LAKE DAM Aquatic Vegetation Study Reach

Winter 2025
Surveyed: January 15, 2025



Map created on 11/11/2025. Projected
in NAD 1983 UTM Zone 14N at 1:700.

SPRING LAKE DAM

	Bryophyte	13.4 m ²
	Heteranthera	10.1 m ²
	Hydrocotyle	169.9 m ²
	Potamogeton	28.9 m ²
	Sagittaria	33.4 m ²
	Zizania texana	953.6 m ²
	Study Reach	

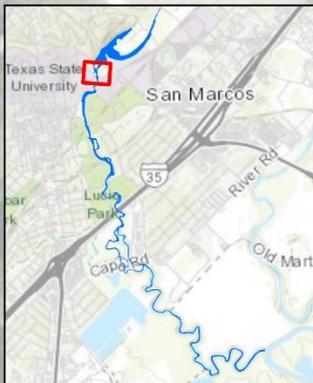


Figure C1. Map of aquatic vegetation coverage at Spring Lake Dam Study Reach in January 2025.

San Marcos River

San Marcos, Texas SPRING LAKE DAM Aquatic Vegetation Study Reach

Spring 2025
Surveyed: March 25, 2025



Map created on 11/12/2025. Projected
in NAD 1983 UTM Zone 14N at 1:700.

SPRING LAKE DAM

	Heteranthera	12.2 m ²
	Hydrocotyle	140.6 m ²
	Potamogeton	27.3 m ²
	Sagittaria	16.1 m ²
	grass	5.4 m ²
	Zizania texana	1,014.2 m ²
	Study Reach	

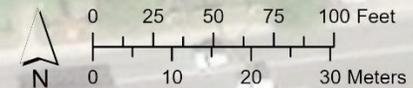
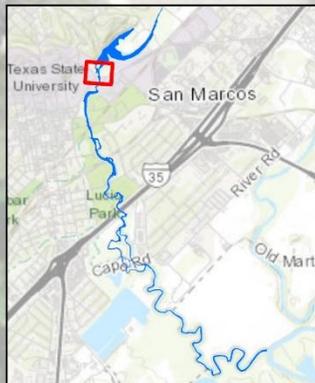


Figure C2. Map of aquatic vegetation coverage at Spring Lake Dam Study Reach in spring 2025.

San Marcos River

San Marcos, Texas SPRING LAKE DAM Aquatic Vegetation Study Reach

Low-flow Event 2025
Surveyed: June 17, 2025



Map created on 11/12/2025. Projected
in NAD 1983 UTM Zone 14N at 1:700.

SPRING LAKE DAM

	Ceratophyllum	25.1 m ²
	Heteranthera	12.2 m ²
	Hydrocotyle	89.9 m ²
	Potamogeton	26.3 m ²
	Sagittaria	34.7 m ²
	Grass	36.9 m ²
	Cabomba	8.1 m ²
	Zizania texana	1,156.4 m ²
	Study Reach	

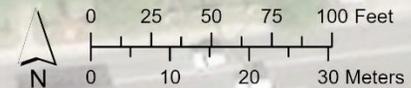
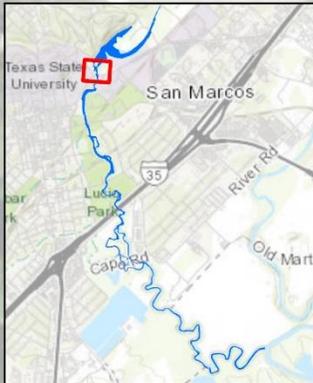


Figure C3. Map of aquatic vegetation coverage at Spring Lake Dam Study Reach in June 2025.

San Marcos River

San Marcos, Texas SPRING LAKE DAM Aquatic Vegetation Study Reach

Fall 2025
Surveyed: September 25, 2025



Map created on 11/12/2025. Projected
in NAD 1983 UTM Zone 14N at 1:700.

SPRING LAKE DAM

	Hydrocotyle	114.1 m ²
	Potamogeton	36.1 m ²
	Sagittaria	27.1 m ²
	Zizania texana	1,142.3 m ²
	Study Reach	



Figure C4. Map of aquatic vegetation coverage at Spring Lake Dam Study Reach in fall 2025.

San Marcos River

San Marcos, Texas

CITY PARK Aquatic Vegetation Study Reach

Winter 2025

Surveyed: January 13, 2025



Map created on 11/11/2025. Projected in NAD 1983 UTM Zone 14N at 1:1,050.

CITY PARK

	Algae	31.5 m ²
	Bryophyte	137.0 m ²
	Bacopa	8.5 m ²
	Cabomba	73.3 m ²
	Hydrocotyle	4.9 m ²
	Ludwigia	17.9 m ²
	Sagittaria	49.6 m ²
	Nasturtium	5.1 m ²
	Zizania texana	2,568.8 m ²
	Study Reach	

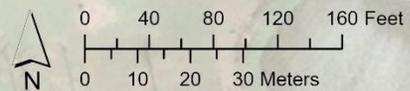


Figure C5. Map of aquatic vegetation coverage at City Park Study Reach in January 2025.

San Marcos River

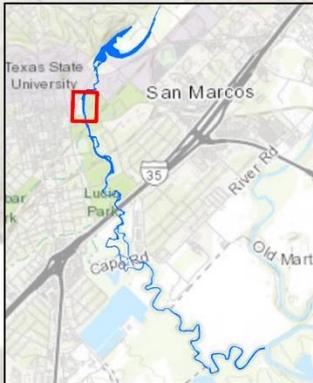
San Marcos, Texas

CITY PARK

Aquatic Vegetation Study Reach

Spring 2025

Surveyed: March 25, 2025



Map created on 11/12/2025. Projected
in NAD 1983 UTM Zone 14N at 1:1,050.



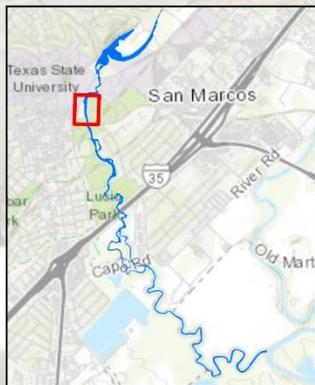
Figure C6. Map of aquatic vegetation coverage at City Park Study Reach in spring 2025.

San Marcos River

San Marcos, Texas

CITY PARK Aquatic Vegetation Study Reach

Low-flow Event 2025
Surveyed: June 17, 2025



Map created on 11/12/2025. Projected
in NAD 1983 UTM Zone 14N at 1:1,050.

CITY PARK		
	Bryophyte	18.0 m ²
	Bacopa	15.6 m ²
	Cabomba	71.4 m ²
	Ceratophyllum	11.7 m ²
	Sagittaria	23.0 m ²
	Grass	20.3 m ²
	Ludwigia	22.0 m ²
	Zizania texana	2,675.3 m ²
	Study Reach	

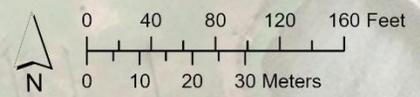


Figure C7. Map of aquatic vegetation coverage at City Park Study Reach in June 2025.

San Marcos River

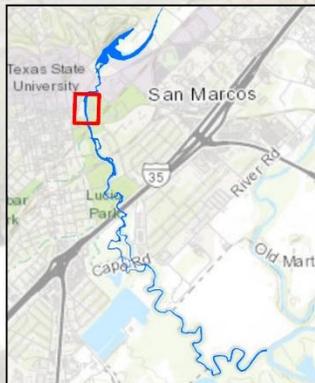
San Marcos, Texas

CITY PARK

Aquatic Vegetation Study Reach

Fall 2025

Surveyed: September 23, 2025



Map created on 11/12/2025. Projected
in NAD 1983 UTM Zone 14N at 1:1,050.

CITY PARK		
	Bryophyte	68.1 m ²
	Bacopa	25.5 m ²
	Cabomba	186.9 m ²
	Sagittaria	34.4 m ²
	Grass	24.0 m ²
	Hydrocotyle	3.7 m ²
	Zizania texana	2,584.0 m ²
	Study Reach	

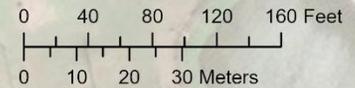


Figure C8. Map of aquatic vegetation coverage at City Park Study Reach in fall 2025.

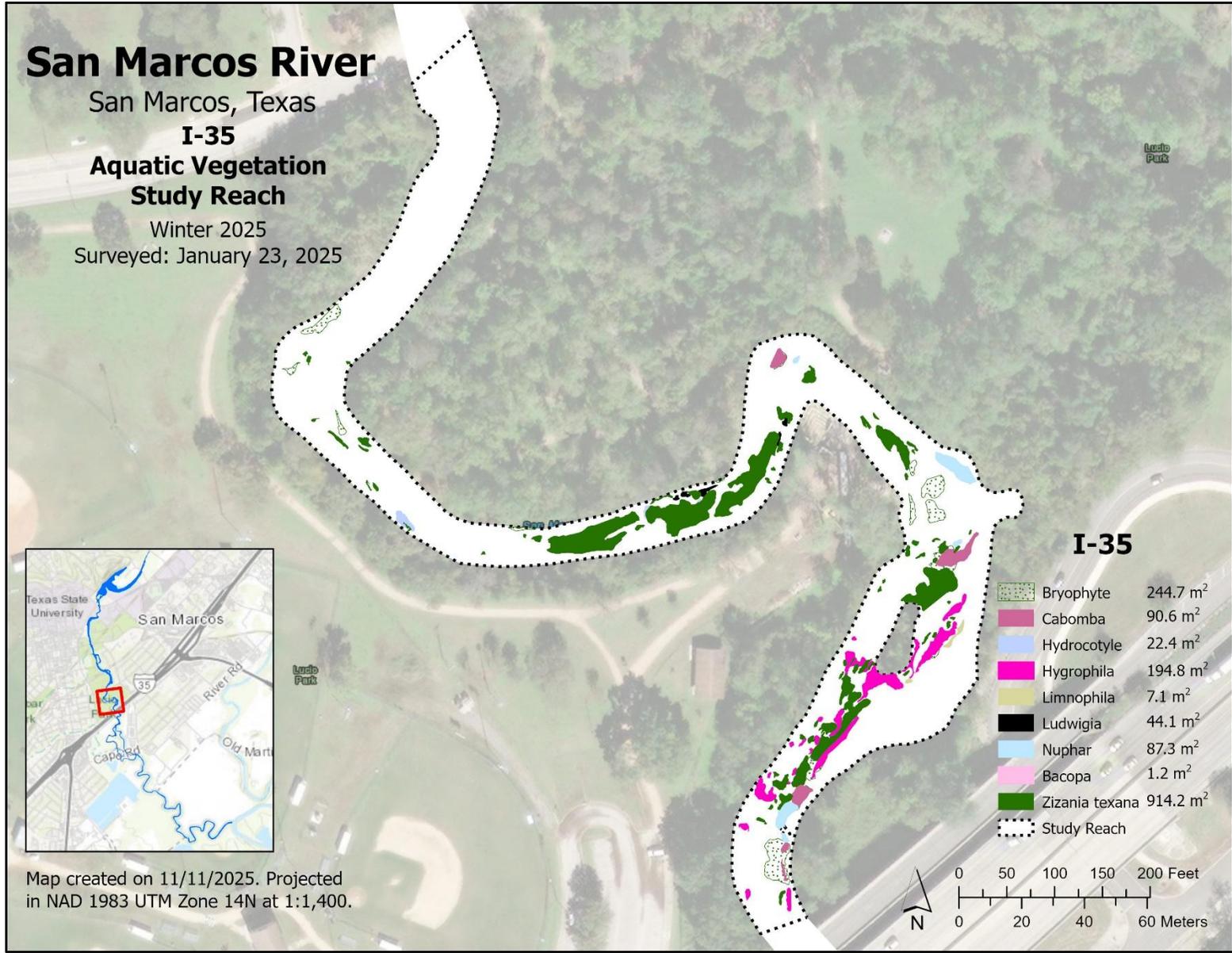


Figure C9. Map of aquatic vegetation coverage at I-35 Study Reach in January 2025.

San Marcos River

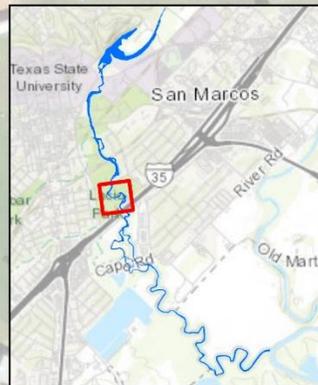
San Marcos, Texas

I-35

Aquatic Vegetation Study Reach

Spring 2025

Surveyed: March 24, 2025



Map created on 11/12/2025. Projected
in NAD 1983 UTM Zone 14N at 1:1,400.

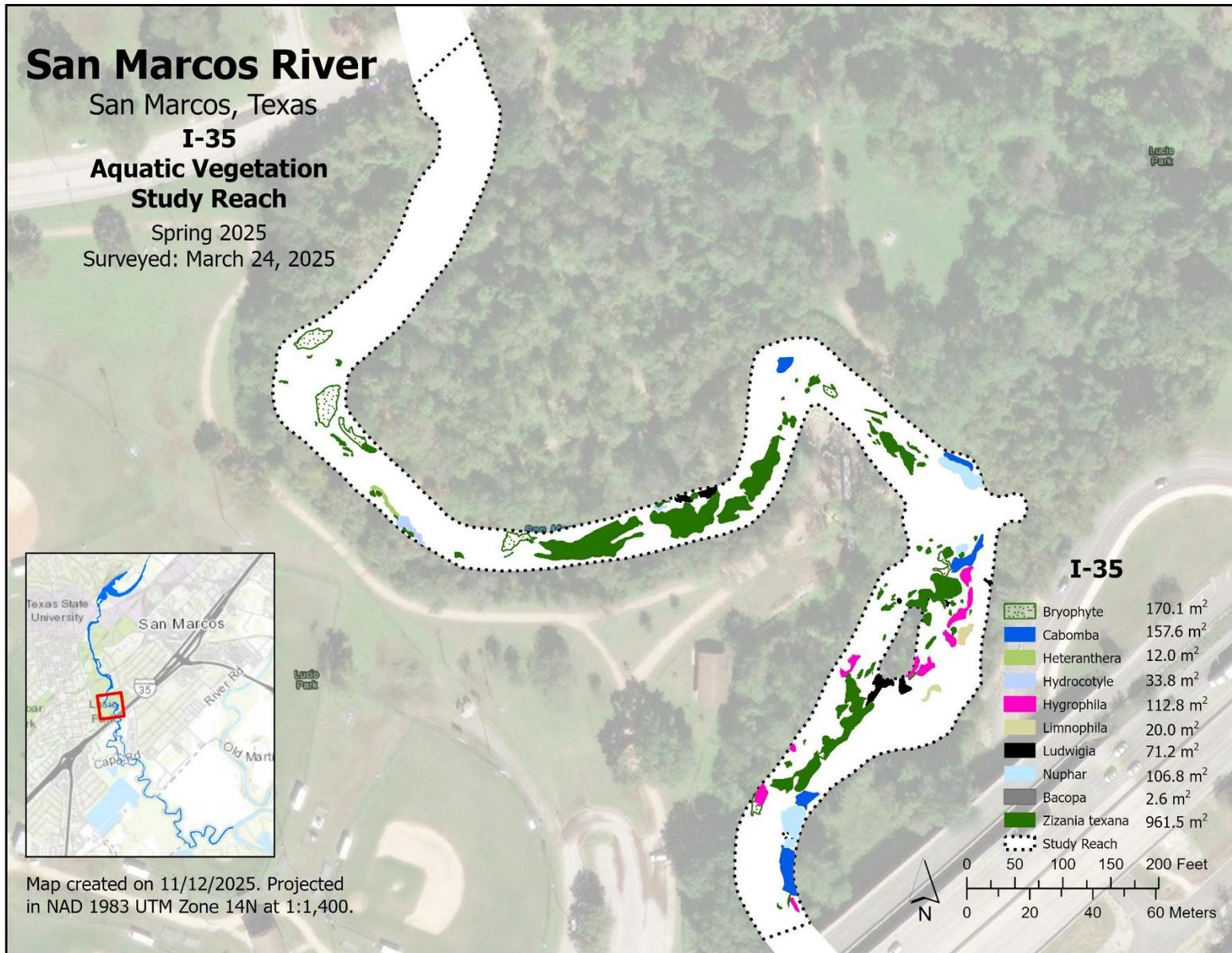


Figure C10. Map of aquatic vegetation coverage at I-35 Study Reach in spring 2025.

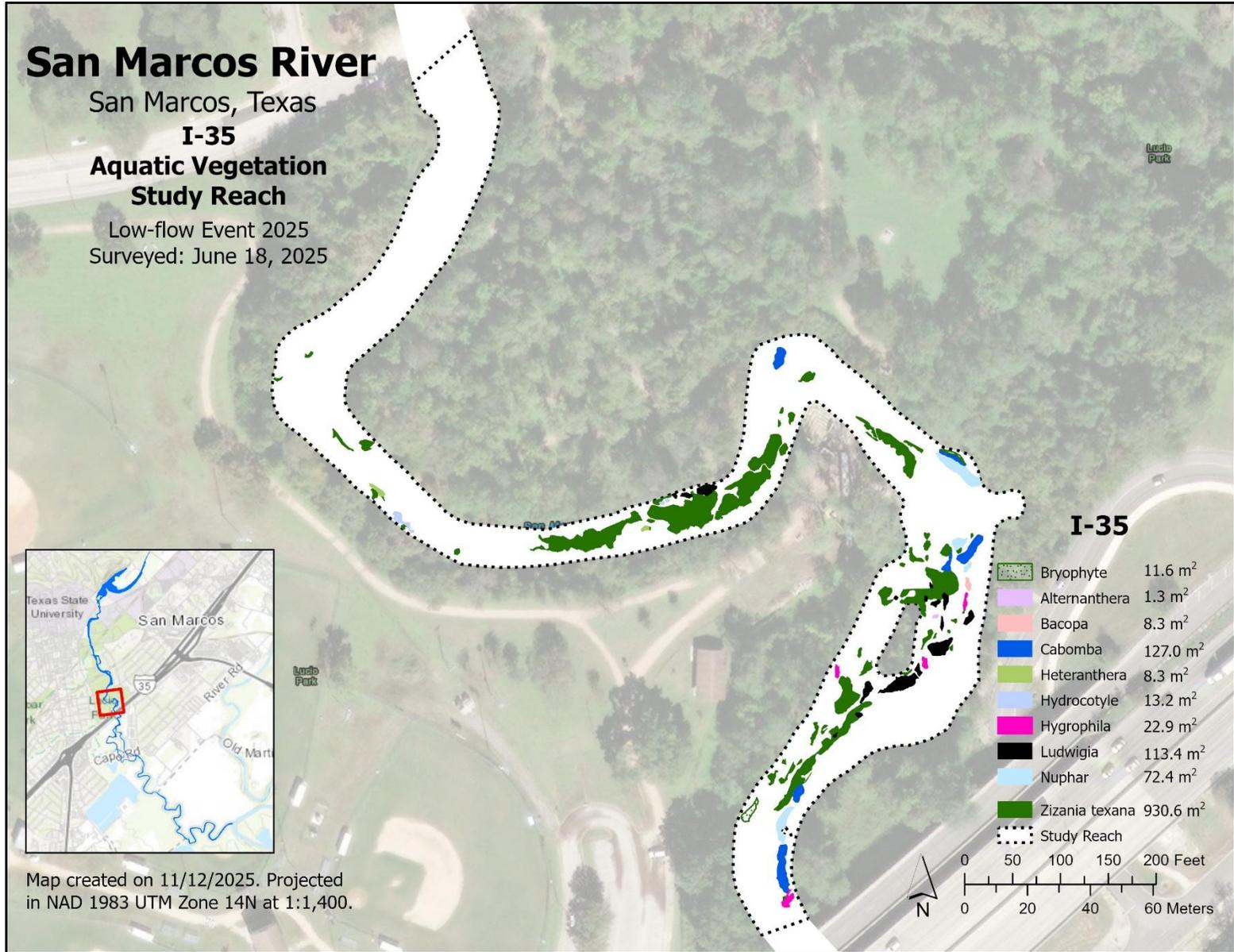


Figure C11. Map of aquatic vegetation coverage at I-35 Study Reach in June 2025.

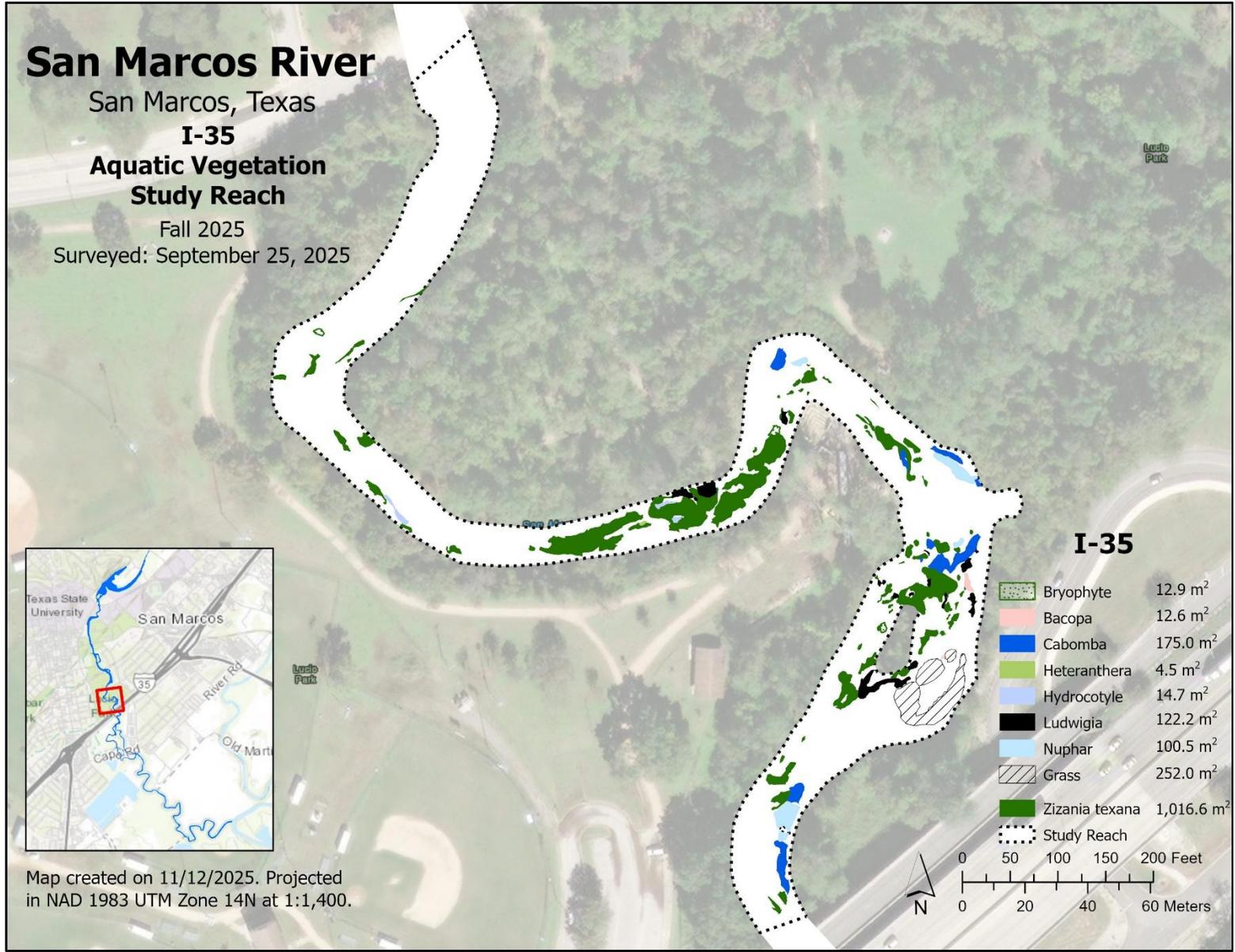


Figure C12. Map of aquatic vegetation coverage at I-35 Study Reach in fall 2025.

Texas Wild-rice Annual Mapping

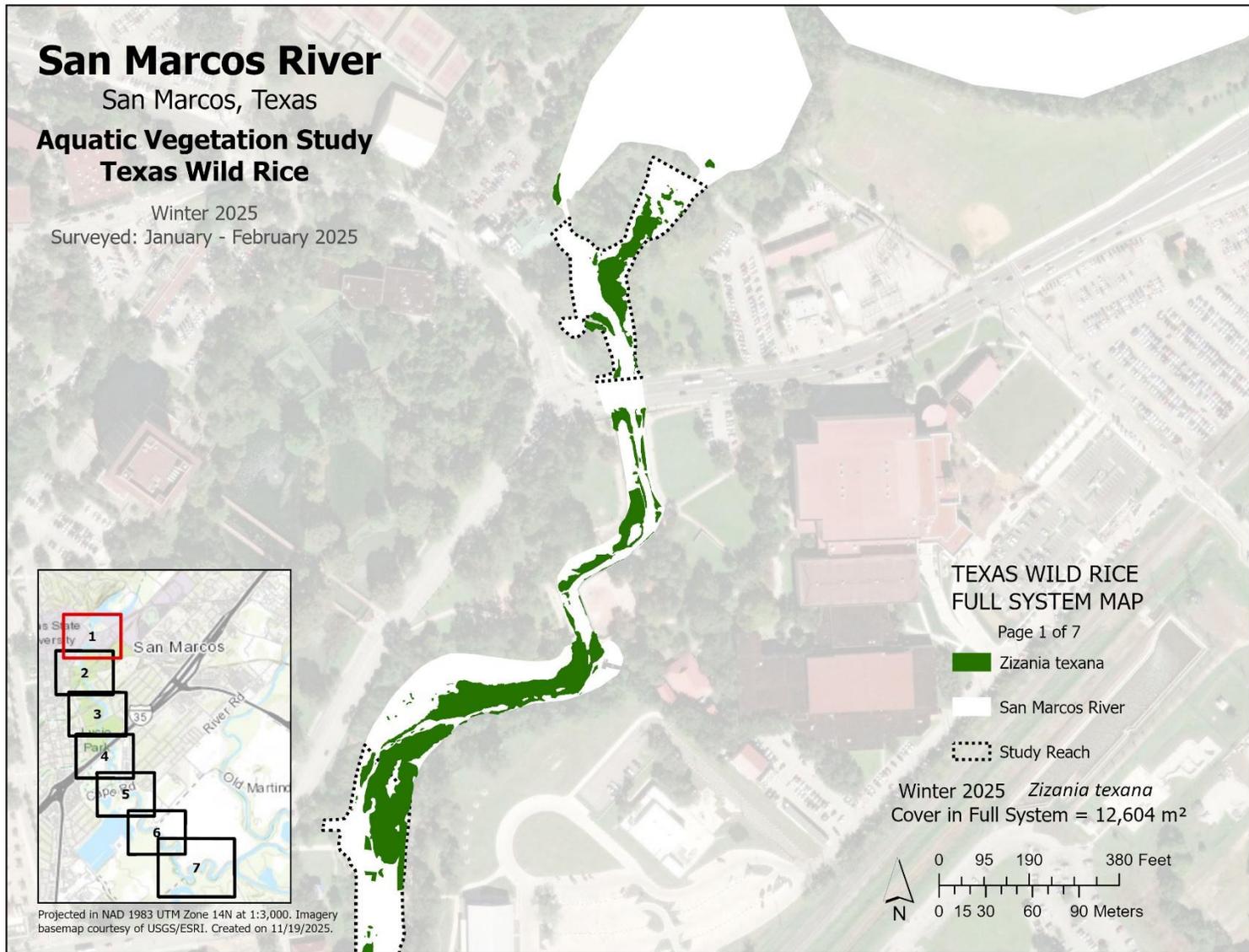


Figure C13. Map of Texas Wild-rice coverage from Spring Lake to City Park in January 2025.

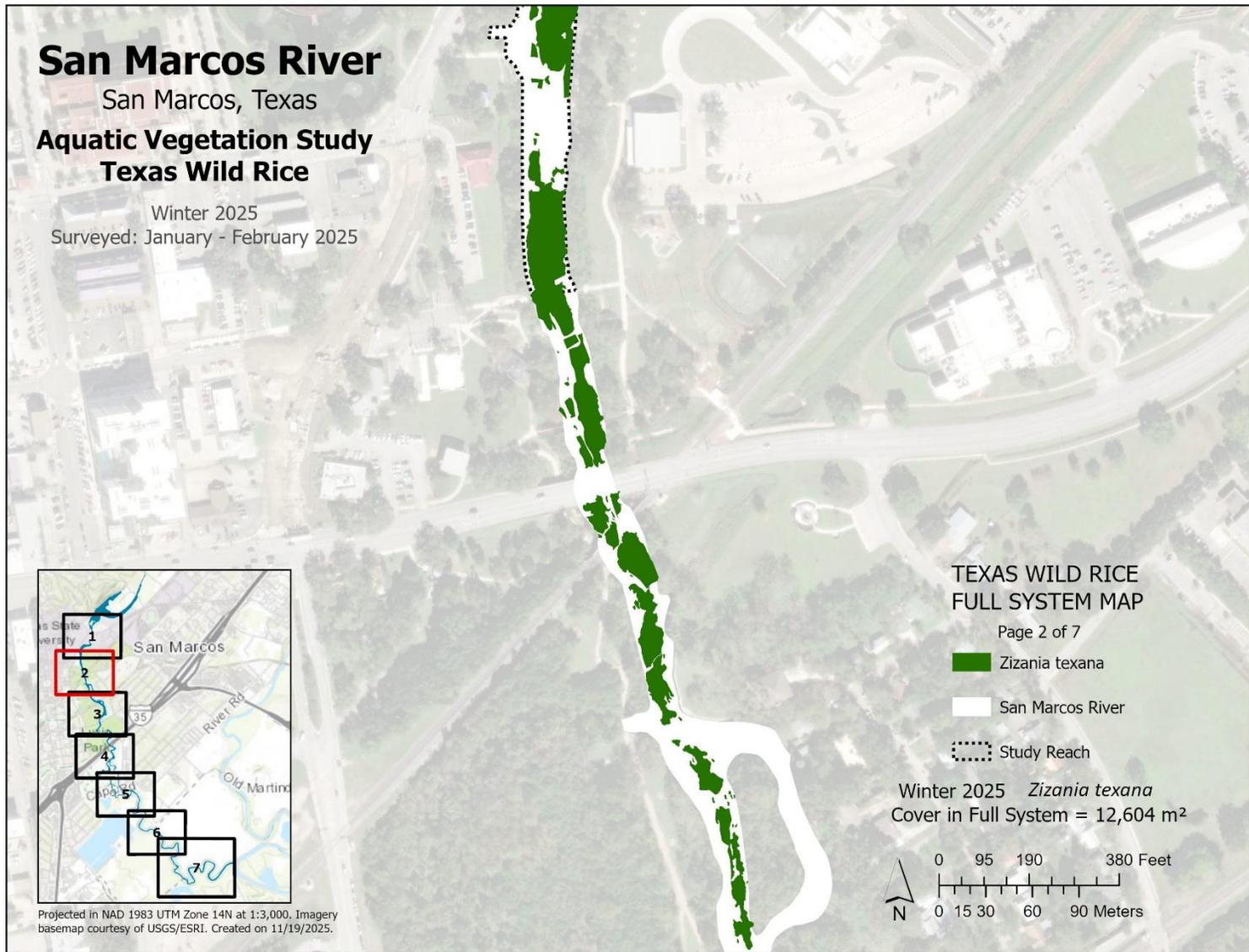


Figure C14. Map of Texas Wild-rice coverage from City Park to Cheatham Street in January 2025.

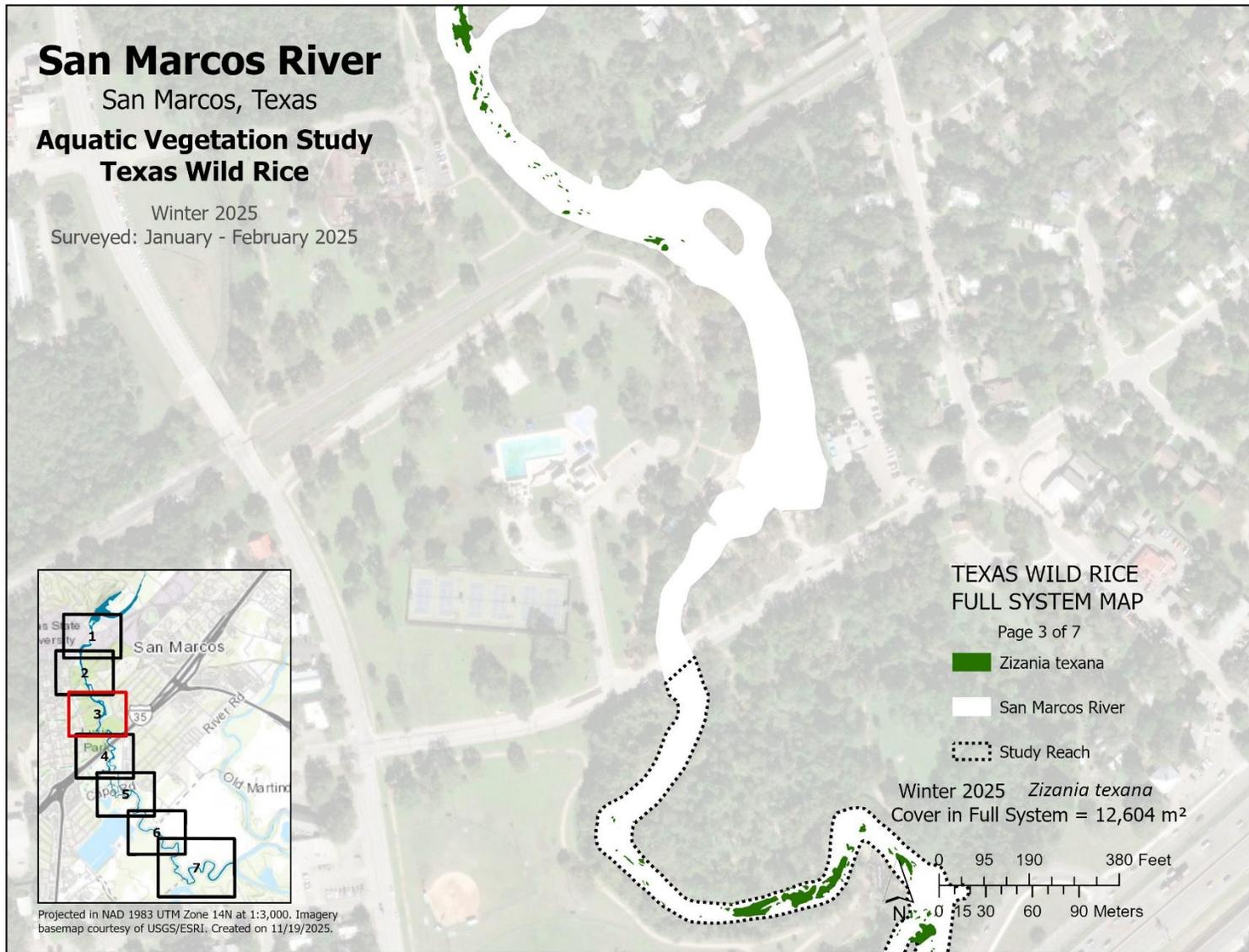


Figure C15. Map of Texas Wild-rice coverage from Cheatham Street to I-35 in January 2025.

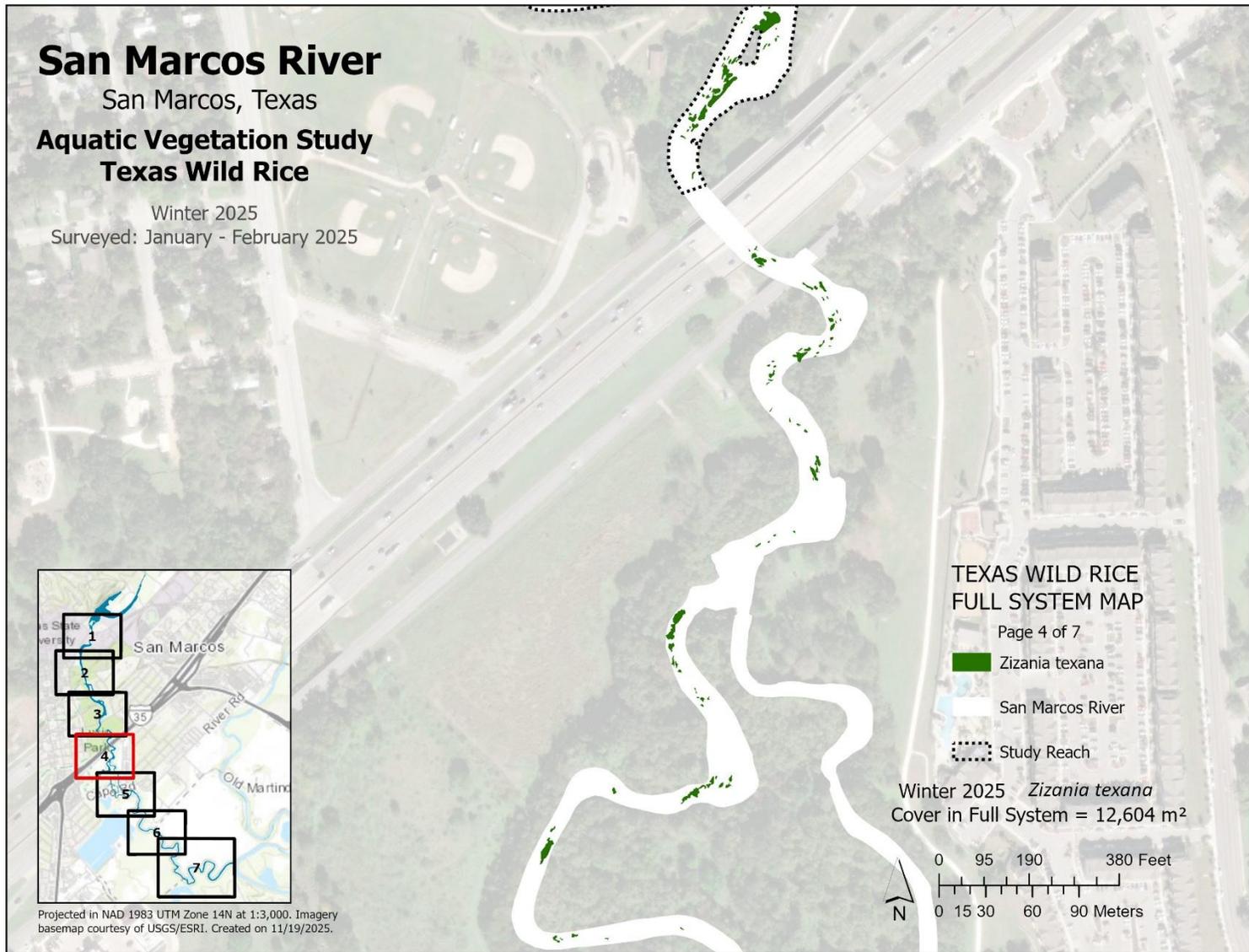


Figure C16. Map of Texas Wild-rice coverage from Cheatham Street to about Stokes Park in January 2025.

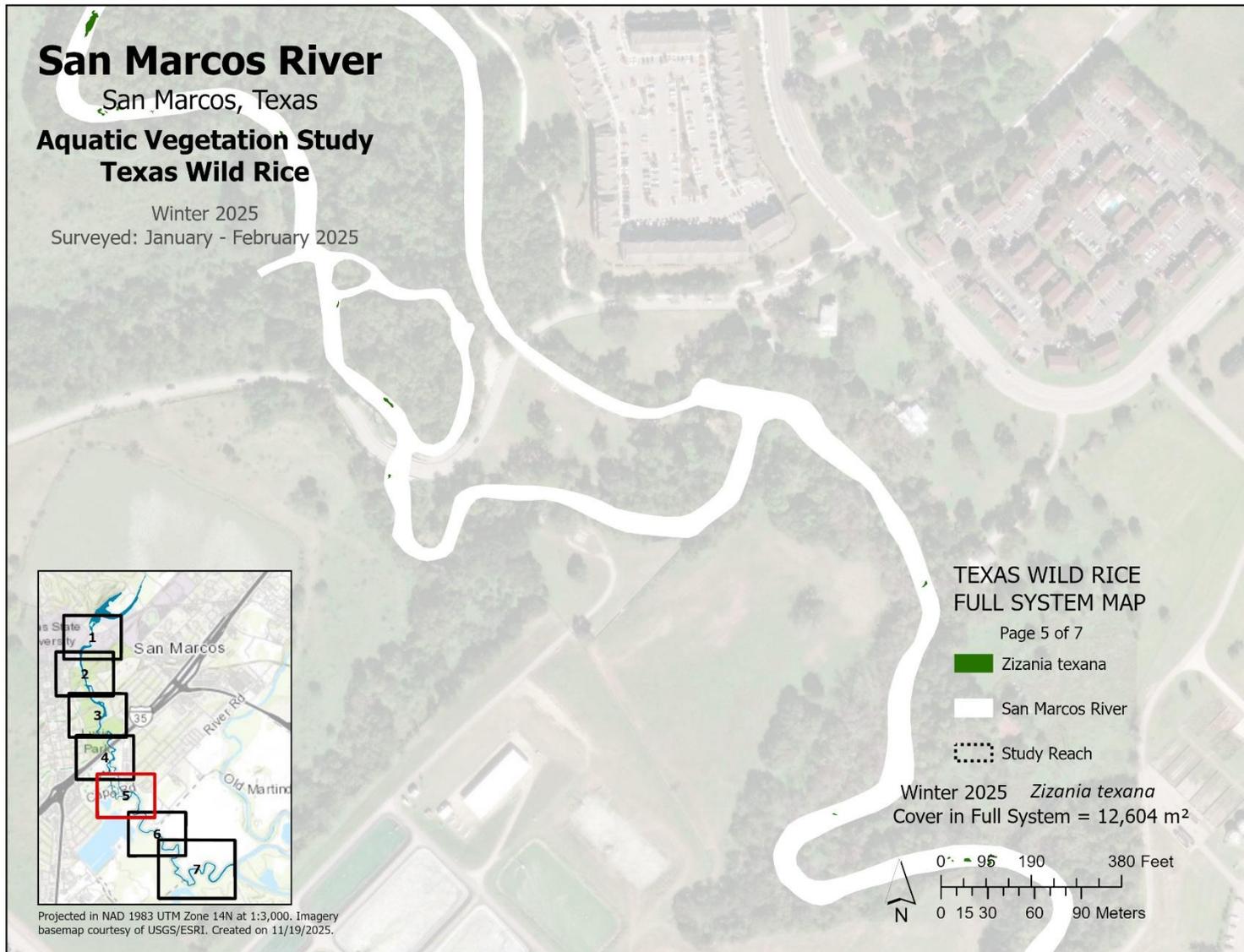


Figure C17. Map of Texas Wild-rice coverage from about Stokes Park to Wastewater Treatment Plant in January 2025.

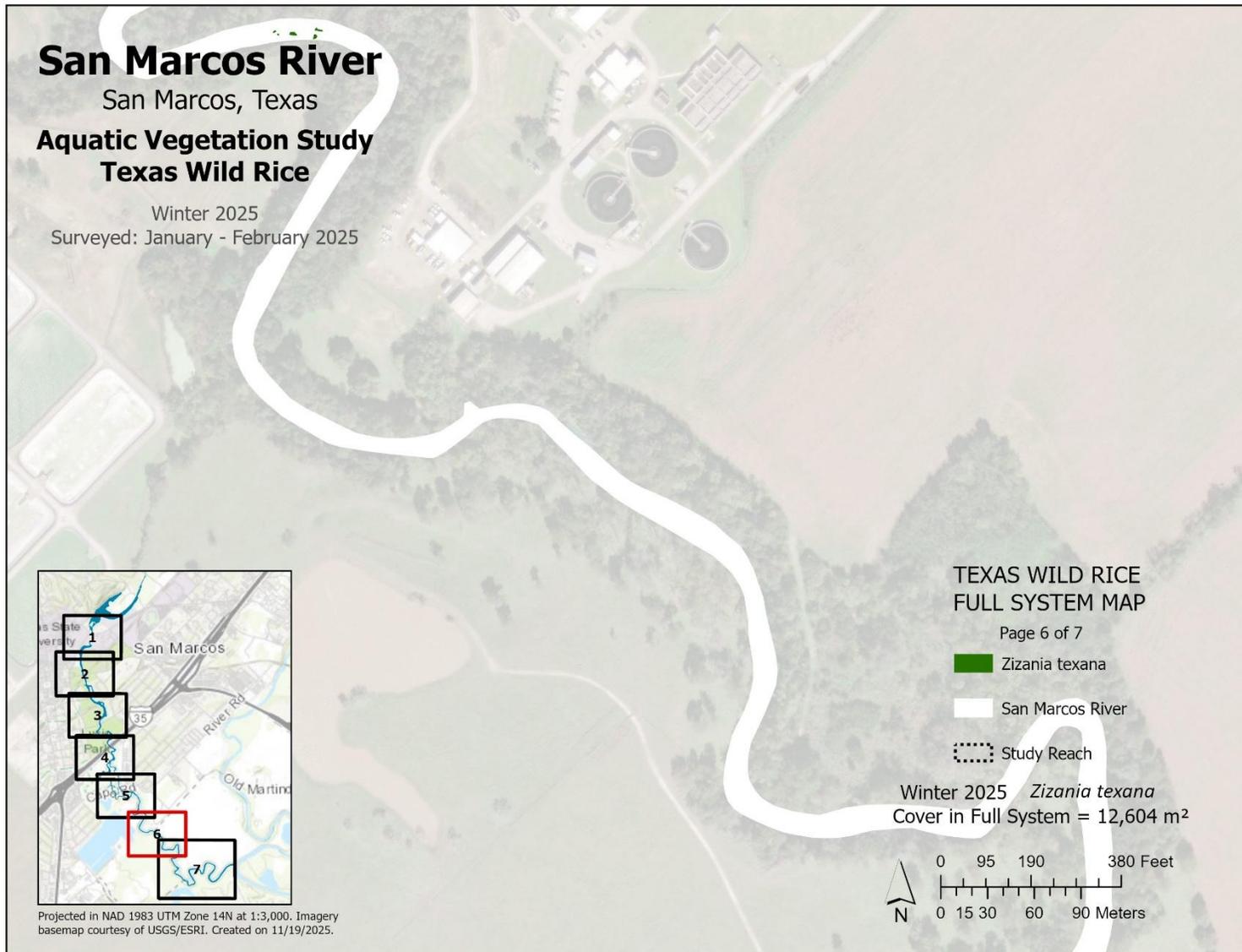


Figure C18. Map of Texas Wild-rice coverage from Wastewater Treatment Plant to about Cypress Tree Island in January 2025.

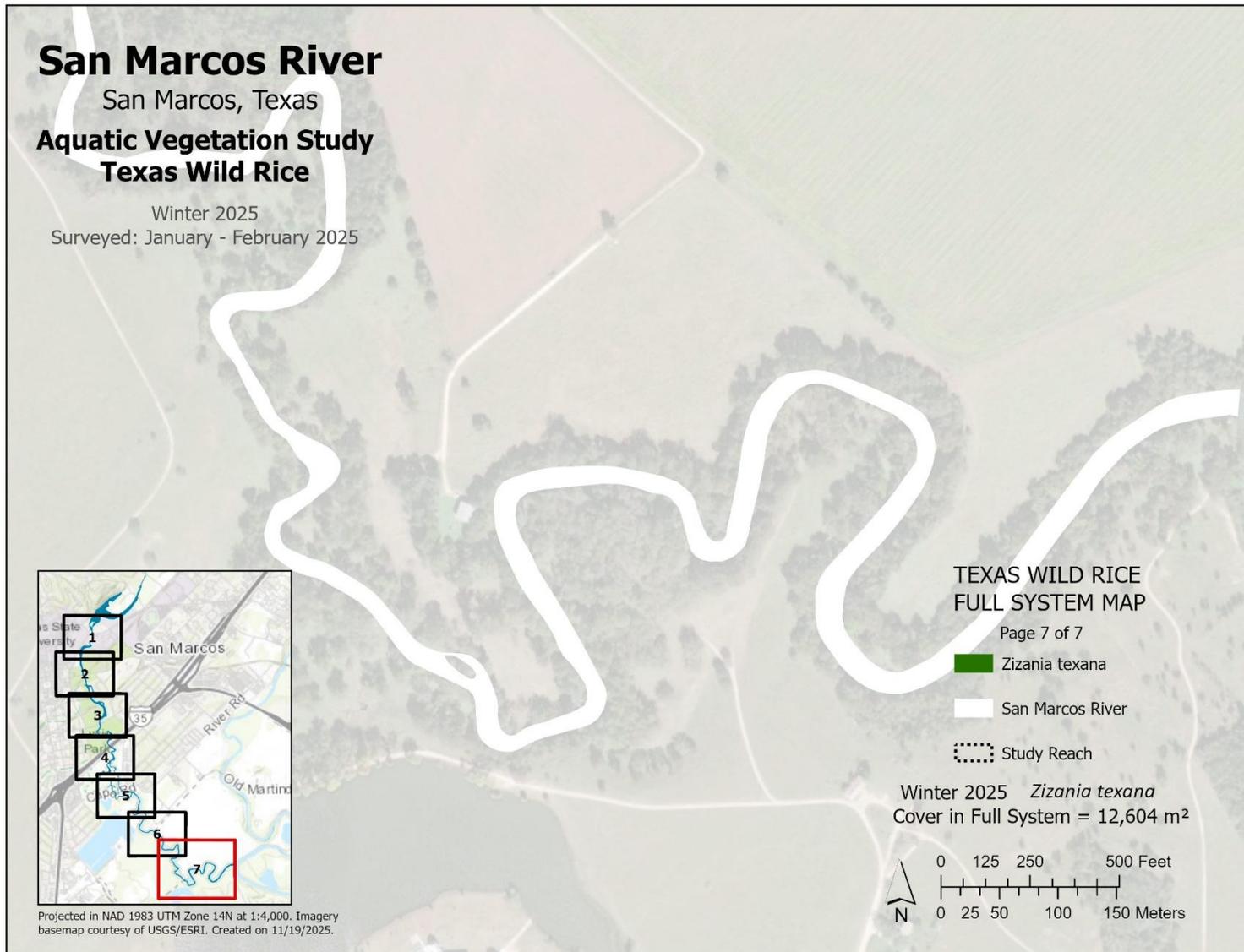


Figure C19. Map of Texas Wild-rice coverage from about Cypress Tree to the Blanco River confluence in January 2025.

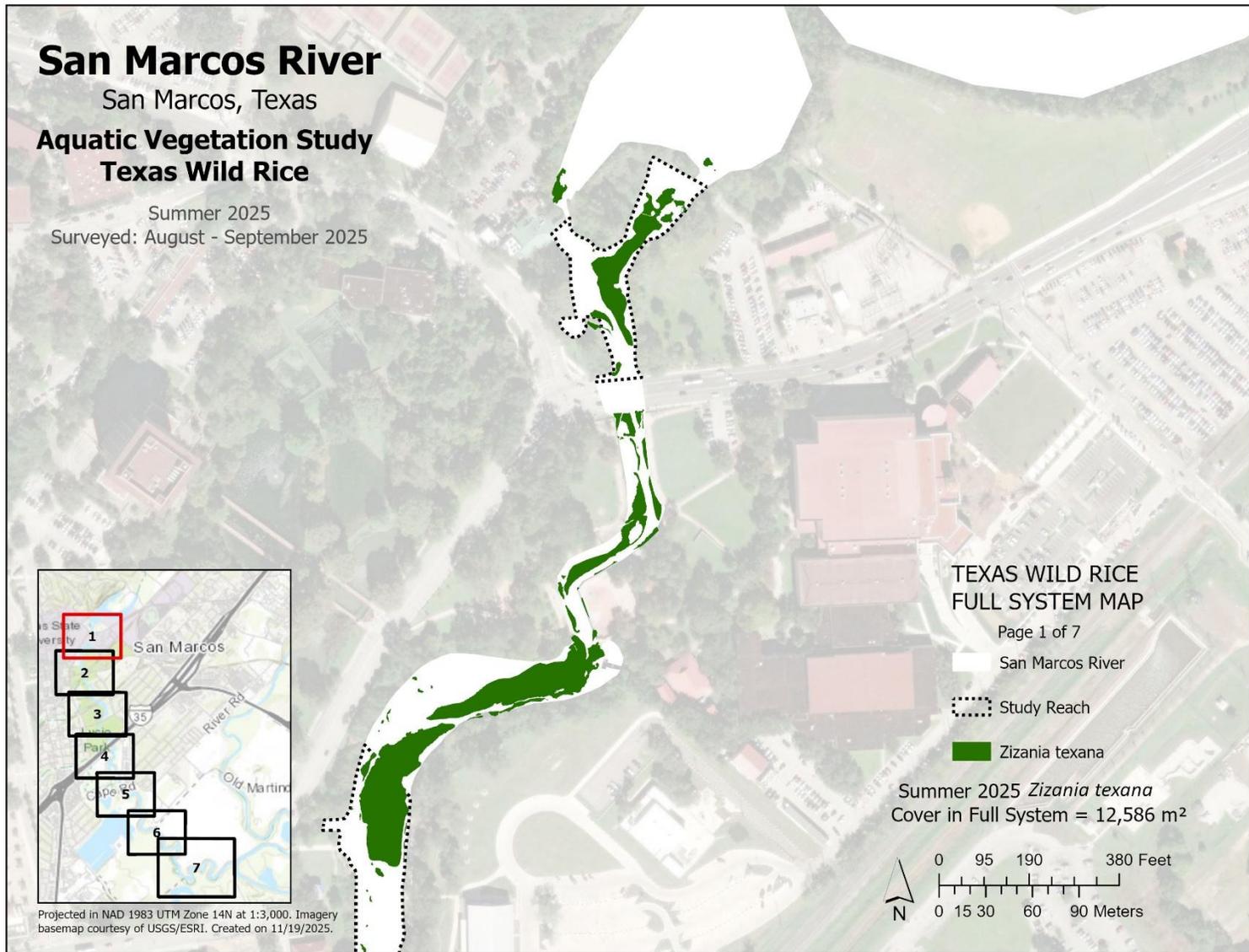


Figure C20. Map of Texas Wild-rice coverage from Spring Lake to City Park in summer 2025.

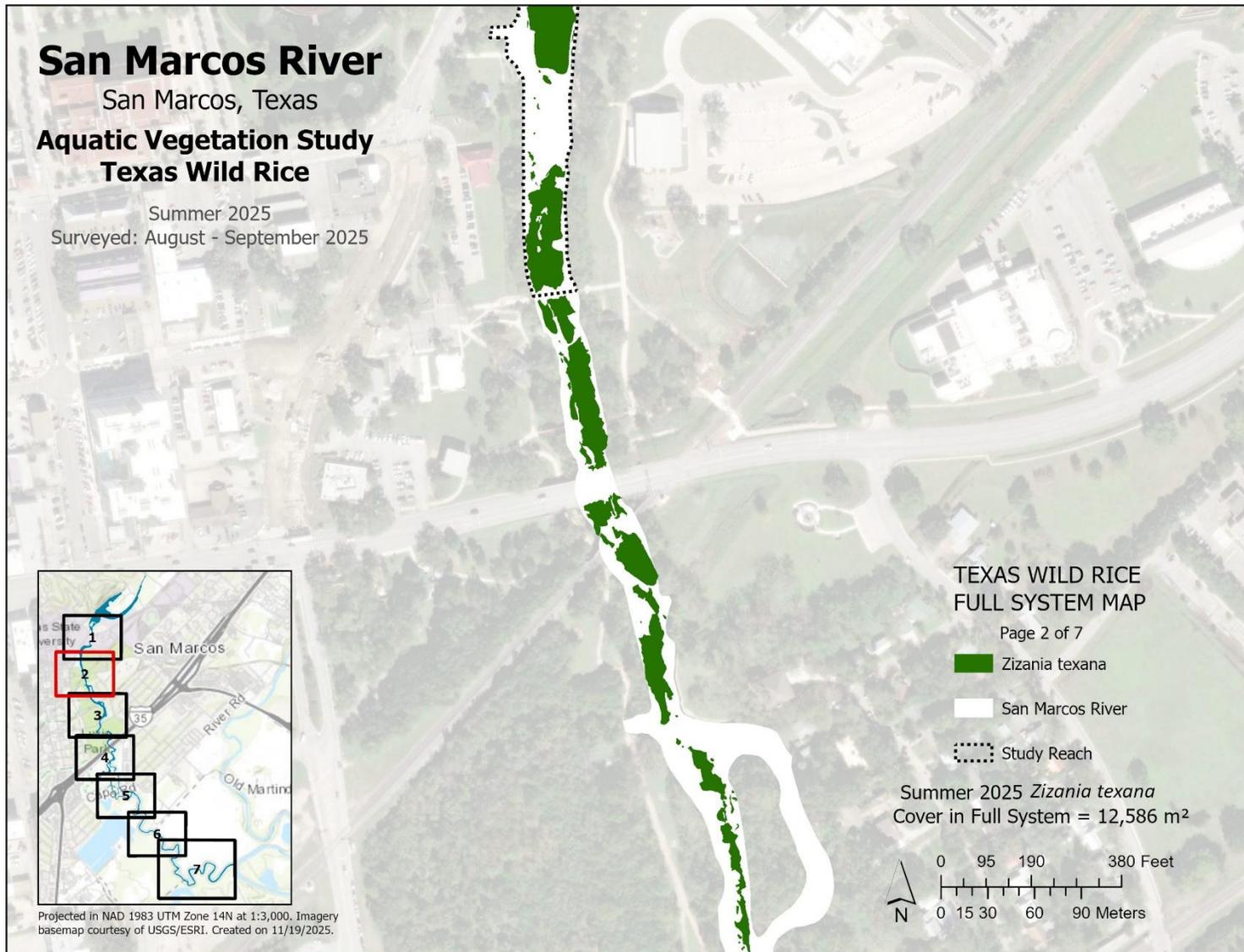


Figure C21. Map of Texas Wild-rice coverage from City Park to Cheatham Street in summer 2025.

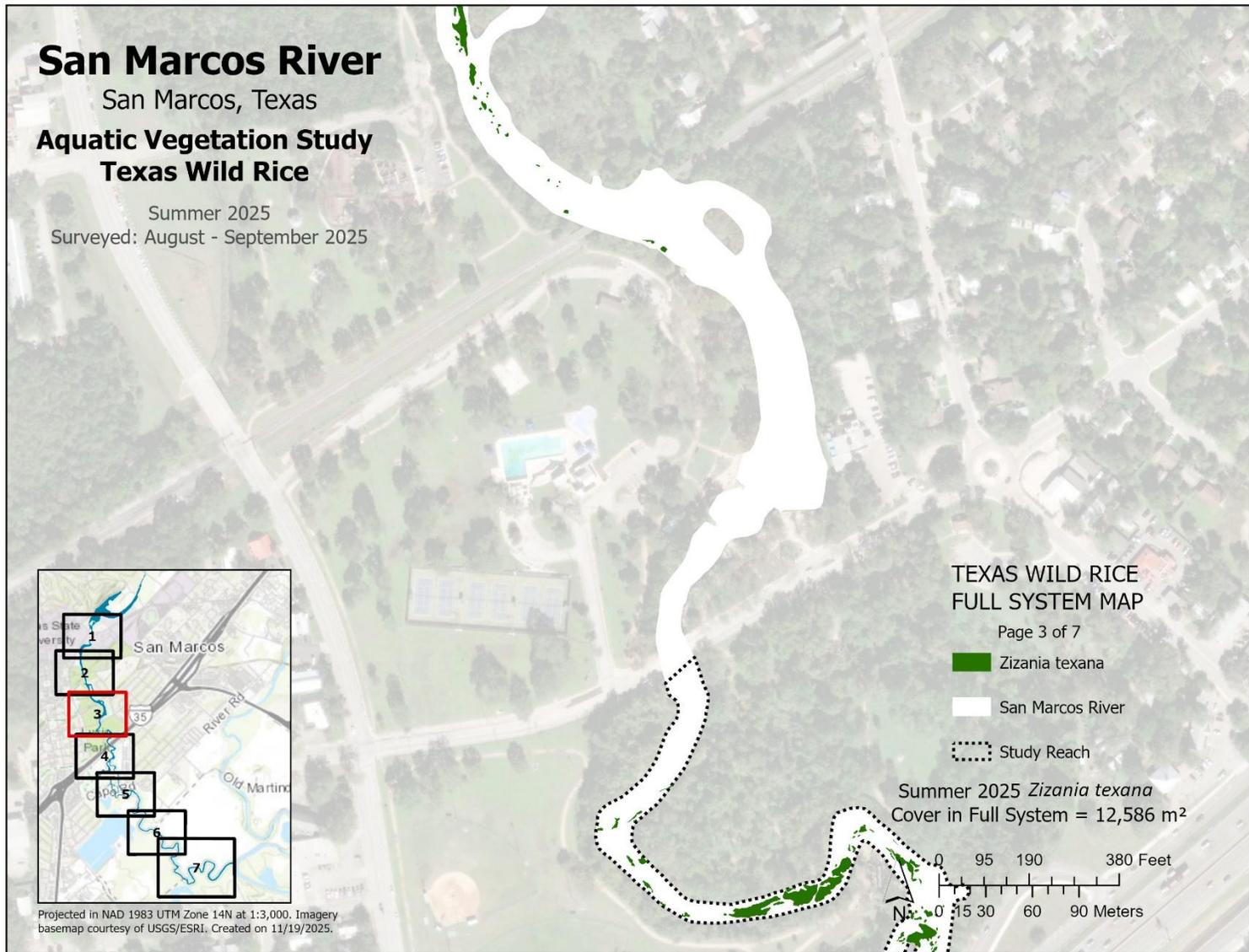


Figure C22. Map of Texas Wild-rice coverage from Cheatham Street to I-35 in summer 2025.

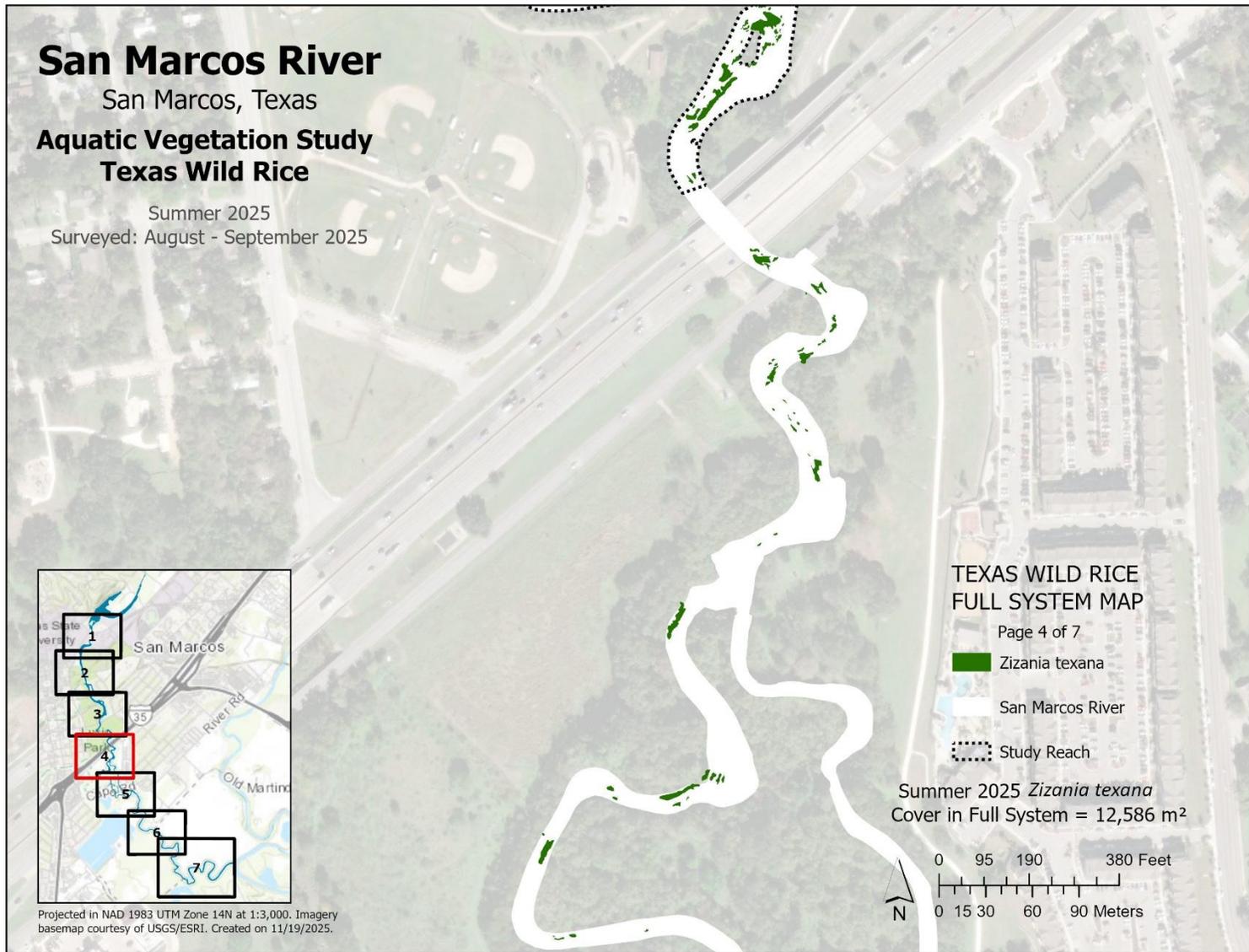


Figure C23. Map of Texas Wild-rice coverage from Cheatham Street to about Stokes Park in summer 2025.

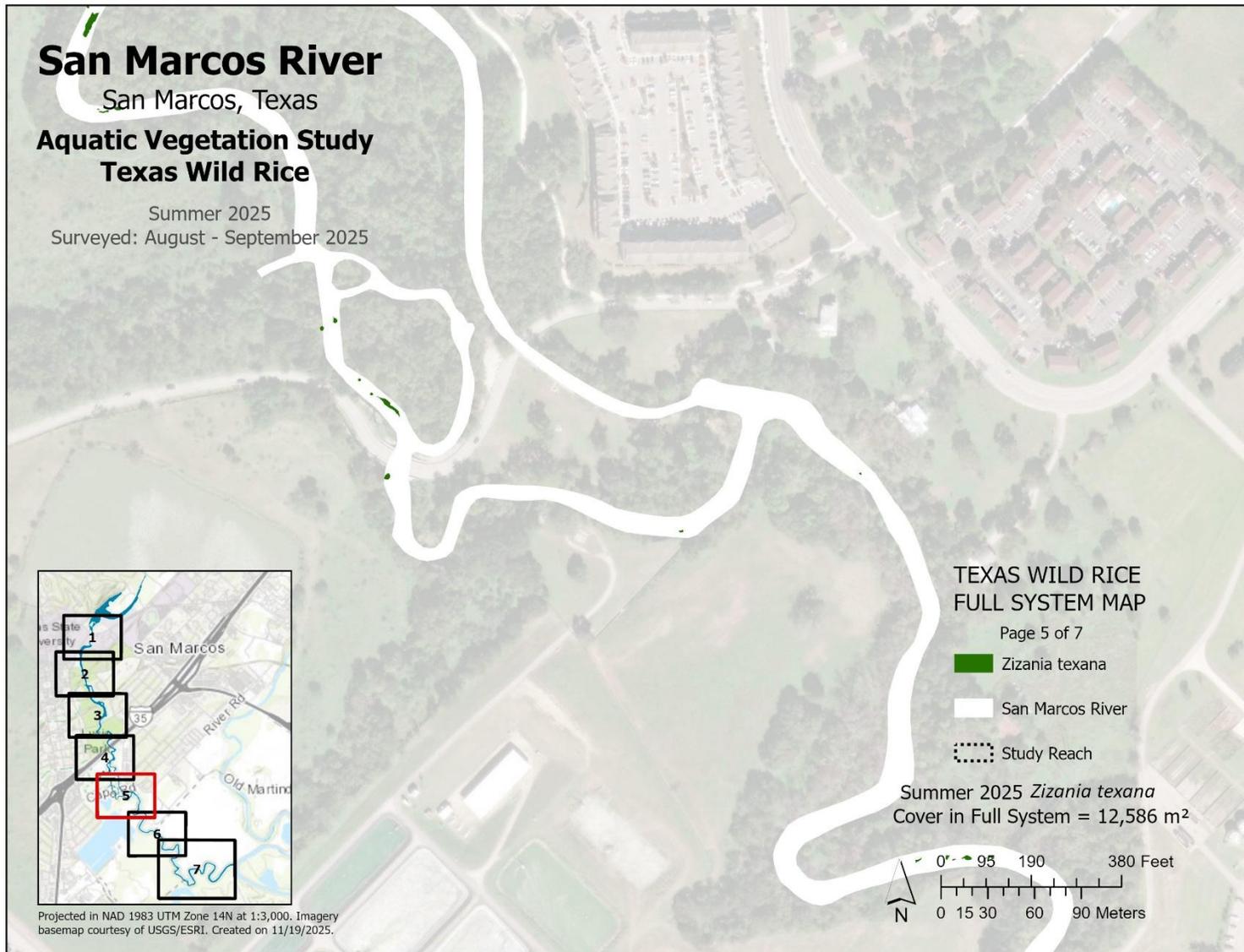


Figure C24. Map of Texas Wild-rice coverage from about Stokes Park to Wastewater Treatment Plant in summer 2025.

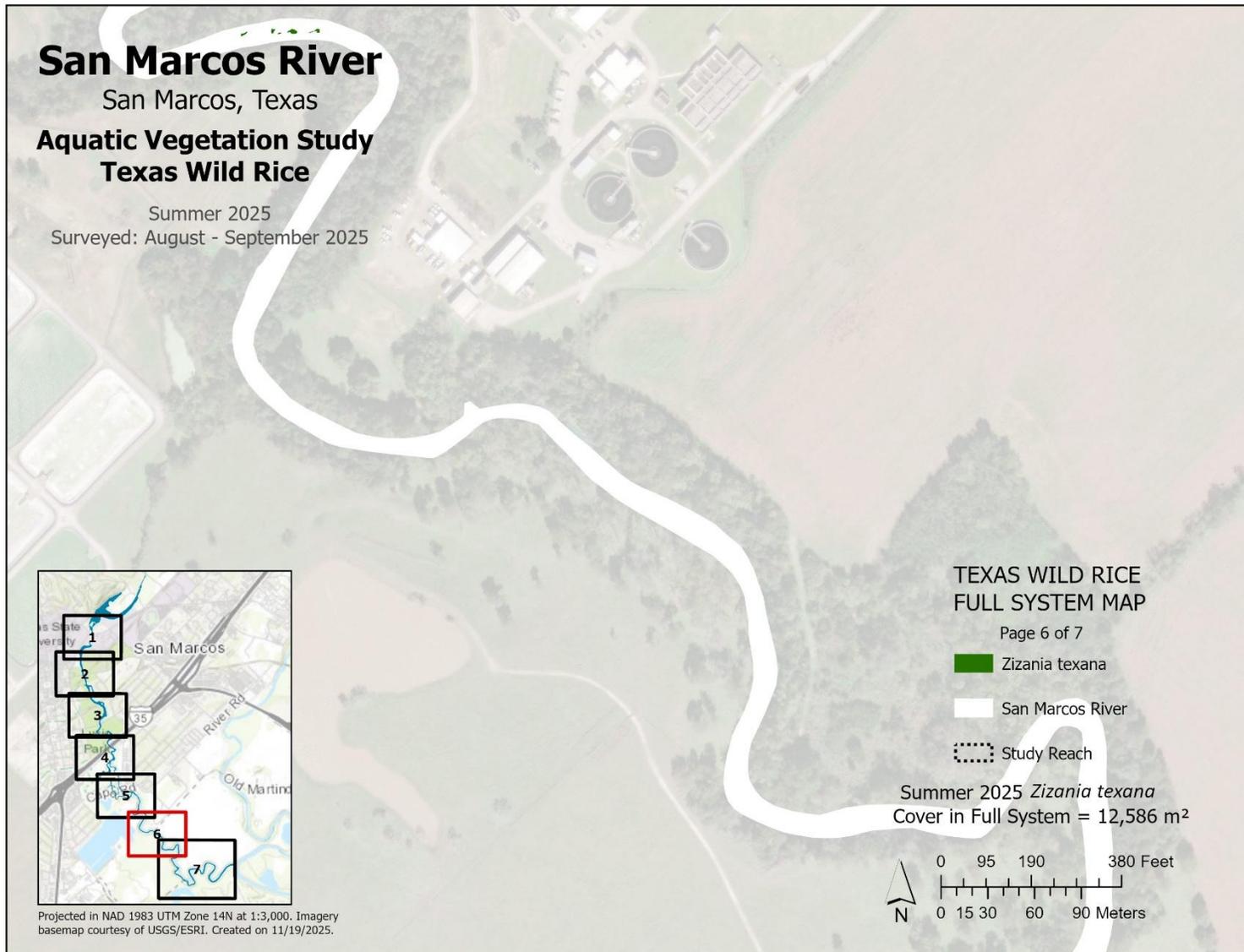


Figure C25. Map of Texas Wild-rice coverage from Wastewater Treatment Plant to about Cypress Tree Island in summer 2025.

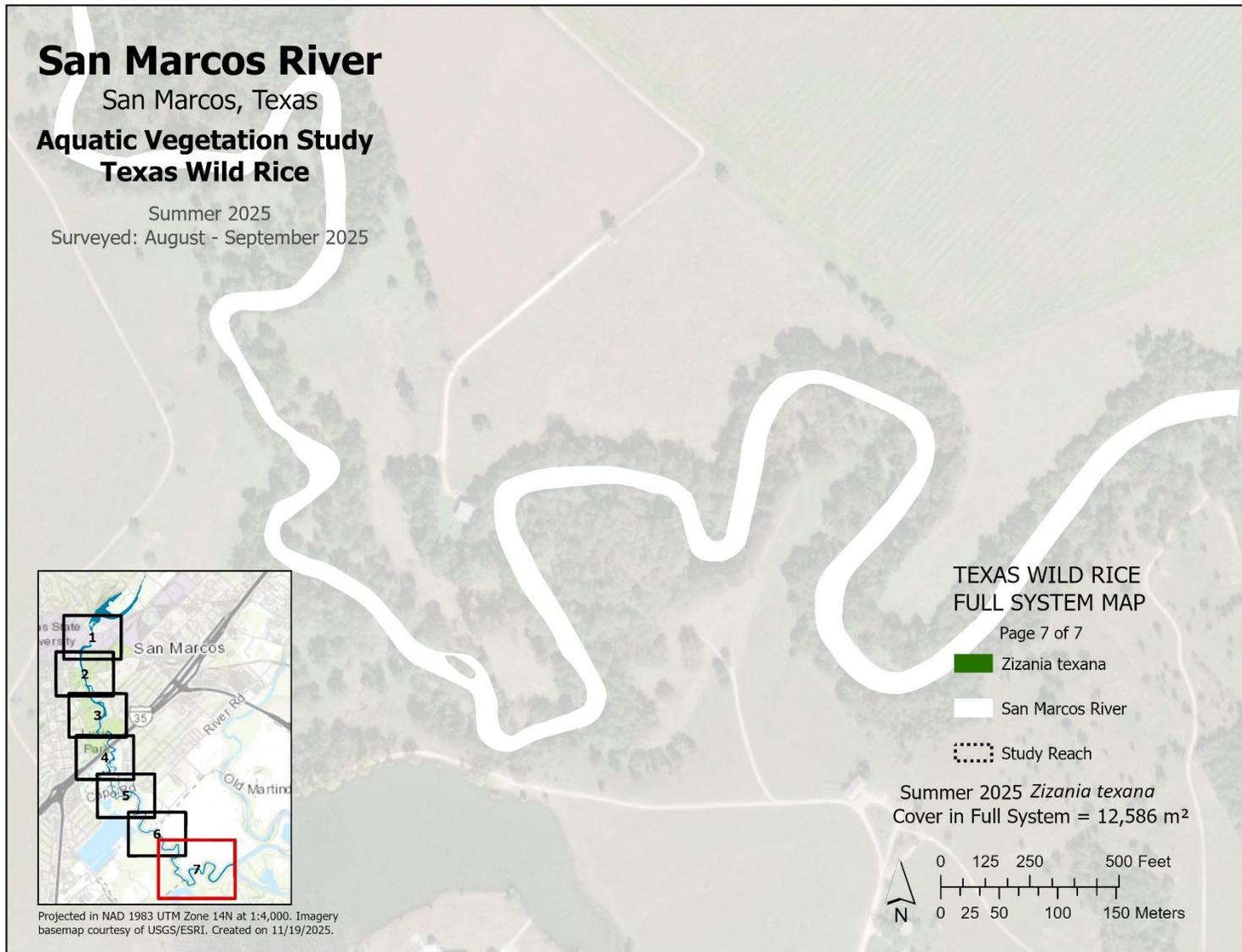


Figure C26. Map of Texas Wild-rice coverage from about Cypress Tree to the Blanco River confluence in summer 2025.

**APPENDIX D: TEXAS WILD-RICE PHYSICAL
OBSERVATIONS**

For the 2025 Summer annual mapping event, 253 stands and 235 points of Texas Wild-rice (TWR) were mapped. The extent of Texas Wild-rice was unchanged compared to previous years and the most downstream extent of rice was located at the power line right-of-way as it crosses the river at A.E. Wood State Fish Hatchery (29.8664456N; -97.9271326W). Most (47%) Texas Wild-rice stands were documented at water depths ≥ 3 feet (ft). Texas Wild-rice stands were found at similar frequencies between 0 to 0.9 and 2.0 to 2.9 ft (Table D1). Approximately 28% of Texas Wild-rice stands were found to be associated with another aquatic plant species, which was similar to the previous year. One non-native aquatic plant species, *Hygrophila polysperma*, and one native aquatic plant species, *Cabomba caroliniana*, were the most commonly associated taxa with Texas Wild-rice (Table D2). Plant community associations have changed considerably over the last few years, as native plants have become more widespread throughout the river. Lastly, there were 34 Texas Wild-rice stands in bloom at the time of mapping and bloom percentage ranged from 10 to 80%.

Table D1. Distribution of Texas Wild-rice stands based on water depth (n=253) during annual mapping in July/August 2025.

WATER DEPTH (ft)	# OF TWR STANDS	FREQUENCY (%)
0 to 0.9	27	11
1.0-1.9	79	31
2.0-2.9	28	11
3.0 +	119	47

Table D2. Associated species found with Texas Wild-rice stands (n=71) during annual mapping in July/August 2024.

SPECIES	# OF TWR STANDS	FREQUENCY (%)
<i>Hygrophila polysperma</i>	21	26
<i>Cabomba caroliniana</i>	25	31
<i>Ludwigia repens</i>	10	12
<i>Hydrocotyle verticillata</i>	6	7
Other species	9	11

Observations for vulnerable Texas Wild-rice were conducted seven times during 2025 (Table D3). These qualitative measurements included the following categories: 1) the percent of the stand that was emergent (including the percent with seed or flower); and 2) the percent covered with vegetation mats or algae buildup and a categorical estimation of root exposure. Rectangular study plots, established around chosen vulnerable stands in GIS were used to locate and identify vulnerable Texas Wild-rice stands for sampling. Individual stands are mapped in GIS to provide length, width, and cover estimates. Water depth and flow measurements were taken at the upstream edge of each Texas Wild-rice stand. San Marcos River mean daily discharge during the monitoring events ranged from 84 cfs during the first low-flow sampling event in January to 106 cfs during the sixth low-flow sampling event in June. While still below the historical mean daily discharge of 186 cfs, this year's flow conditions were relatively stable compared to 2024 and similar to 2023.

As in the previous year, physical observations were made for vulnerable Texas Wild-rice stands within three general study areas: 1) Spring Lake Dam / Sewell Park; 2) Veramendi Park; and 3) I-35. These study areas are heavily trafficked with river recreation due to their location near river

access points that allow recreators to enter, exit or linger for the duration of a given day. Therefore, during peak recreation season, Texas Wild-rice patches at these locations are typically subjected to harsher disturbances compared to patches located in other reaches of the river. At the end of this appendix, coverage of each vulnerable stand, percent of stands at water depths less than 0.50 ft, and index of root exposure for stands can be found in Table D4, Figure D4, and Figure D5, respectively.

Table D3. Dates of Texas Wild-rice observations conducted in 2025 with corresponding average daily discharge in the San Marcos River.

PHYSICAL OBSERVATIONS EVENT	EVENT TYPE	DATE	MEAN DAILY DISCHARGE (cfs)
1	Low Flow Physical Observation	January 13	84
2	Low Flow Physical Observation	February 7	85
3	Low Flow Physical Observation	March 3	86
4	Spring Biological Monitoring	April 11	87
5	Low Flow Physical Observation	May 30	93
6	Low Flow Physical Observation	June 20	106
7	Fall Biological Monitoring	October 13	89

<http://nwis.waterdata.usgs.gov/tx>

Spring Lake Dam/Sewell Park Reach

The Texas Wild-rice stands in this reach varied in coverage and health throughout 2025, with the highest total coverage noted during the spring biological monitoring event (202 m²; Table D4). In general, Texas Wild-rice stands in this reach were negatively impacted primarily by foot traffic followed by silt accretion and dewatering, mainly below the Aquarena Springs Road bridge. Stands above the bridge (#1 and #8) remained dense and healthy through the year. Stand #7 was observed with a large percentage of competing terrestrial and emergent vegetation. This competition prevented Texas Wild-rice from expanding as an emergent plant, and recreation prevented the stand from expanding into deeper water. As such this patch became thinner with each subsequent event. Stand #7 was highly eroded along the long edge with clear walking paths throughout (Figure D2). Stands that were not in the path of recreation (e.g., stand #2 and stand #4/5) maintained their footprint.

During spring sampling, velocity at individual stands ranged from 0.0 to 1.37 ft/sec. Turbidity ranged from 1.58 to 2.17 NTU. All stands were in water deeper than 0.5 ft, except stand #8 in which about 90% was in water less than 0.5 ft deep. Root exposure from scouring was noted in this section, with medium scouring at stand #4/5 and #7. During low-flow event 5, velocity ranged from 0.0 to 1.71 ft/sec and root exposure remained medium. Turbidity ranged from 0.73 NTU to 1.71 NTU. Stand #8 was the only stand in water less than 0.5 foot depth. Finally, fall sampling velocity ranged from 0.46 to 2.16 ft/sec. Turbidity ranged from 2.30 to 6.70 NTU.

Stand #8 remained mostly in < 0.5 ft of water and was very thin. Root exposure was extreme around all stands except #1. This area saw the highest percent of vegetation mat cover compared to other sites.



Figure D1. Spring biological monitoring event 2025 (left); Low-flow sampling event 6 2025 (middle); fall biological monitoring event (right) vulnerable Texas Wild-rice plots in the Spring Lake dam / Sewell Park location. Yellow rectangles indicate stand plots. Red polygons indicate individual Texas Wild-rice stands.

Veramendi Park

The river bed has eroded deeper throughout this section which has allowed Texas Wild-rice to expand into deeper water. Total cover of vulnerable Texas Wild-rice stands in Veramendi Park was highest in the fall biological monitoring event (135 m²; Table D4). During the spring biological monitoring event, velocities ranged from 0.01 to 0.76 ft/sec. Turbidity ranged from 2.15 to 3.03 NTU. All stands were noted occurring in water depths deeper than 0.5 ft. Root exposure was moderate across all stands and blooming was minimal. During the low-flow event 5, velocities ranged from 0.76 to 0.96 ft/sec. Turbidity ranged from 2.72 to 5.62 NTU. No stands were noted occurring in water less than 0.5 ft in depth. Root exposure was moderate with some erosion occurring due to walking. During the fall sampling event, velocities ranged from 0.28 to 0.98 ft/sec. Turbidity ranged from 1.61 to 3.86 NTU. Root exposure remained minimal.



Figure D2. Spring biological monitoring event 2025 (left); Low-flow sampling event 6 2025 (middle); fall biological monitoring event (right) vulnerable Texas wild-rice plots in the Veramendi Park area. Yellow rectangles indicate stand plots. Red polygons indicate individual Texas Wild-rice stands.

I-35 Reach

Texas Wild-rice continued to persist in this reach but faced increased recreational pressures and long periods of consistently low flows (below the long-term median). Although this section has lost the most Texas Wild-rice vulnerable stands throughout the current drought, some re-emergence has also occurred. Texas Wild-rice vulnerable stand coverage increased throughout the year. Coverage was lowest during the spring event (135 m²) and highest during the fall event (155 m²; Table D4). During the spring event, velocities ranged from 0.22 to 1.05 ft/sec. Turbidity ranged from 4.31 to 7.02 NTU. Only one stand, Stand #3, was observed in water 0.5 ft deep or less. Root exposure around all stands was minimal. During low-flow 5 event, velocities ranged from 0.27 to 1.71 ft/sec. Turbidity ranged from 3.58 to 5.98 NTU. Root exposure varied from minimal to extreme with stand #8 exhibiting extreme erosion around the root zone. During the fall event, velocities ranged from 0.11 to 1.60 ft/sec. Turbidity ranged from 2.76 to 4.38 NTU. Root exposure for all stands was moderate except for stand #8 in which most roots were completely exposed and subjected to uprooting. Stand #5 was 70% dewatered during this event. Flowering was minimal in both the spring and fall events.



Figure D3. Spring biological monitoring event 2025 (left); Low-flow sampling event 6 2025 (middle); fall biological monitoring event (right) vulnerable Texas wild-rice plots in the I-35 area. Yellow rectangles indicate stand plots. Red polygons indicate individual Texas Wild-rice stands.

Table D4. Cover (m²) of individual vulnerable Texas Wild-rice stands during selected sampling events throughout 2025. Sites labeled 'Gone' denotes vulnerable stands were absent.

LOCATION	SPRING	LOW-FLOW EVENT V	FALL
Sewell Park 1	87	98	98
Sewell Park 2	9	12	8
Sewell Park 3	0	Gone	Gone
Sewell Park 4/5	45	37	35
Sewell Park 6	Gone	Gone	Gone
Sewell Park 7	49	42	33
Sewell Park 8	13	11	9
Sum of Cover	202	200	182
Veramendi 1	9	5	28
Veramendi 2	42	33	28
Veramendi 3	81	89	79
Sum of Cover	133	128	135
I-35-1	5	1	5
I-35-2	5	4	5
I-35-3	2	5	Gone
I-35-4	91	106	112
I-35-5	3	4	1
I-35-6	1	Gone	1
I-35-7	Gone	Gone	Gone
I-35-8	28	24	30
I-35-9	Gone	2	Gone
I-35-10	2	Gone	1
Sum of Cover	136	145	155

Percent of TWR Stands < 0.5 Feet

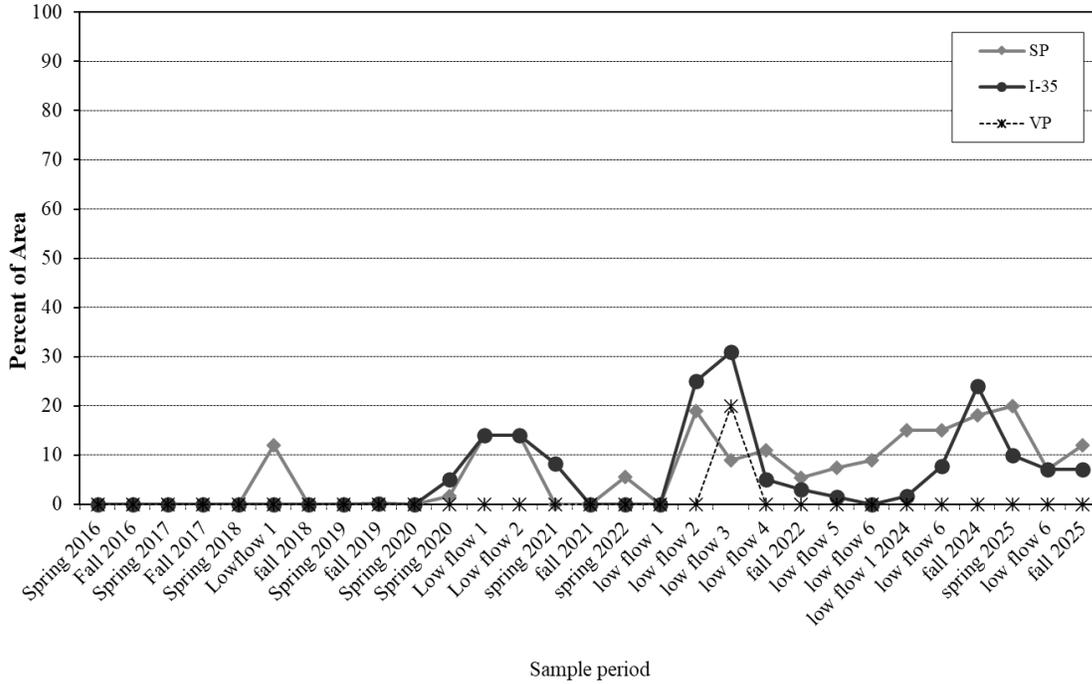


Figure D4. Percent of Texas Wild-rice stands at water depths less than 0.5 feet 2016–2025.

Index of Root Exposure for TWR Stands

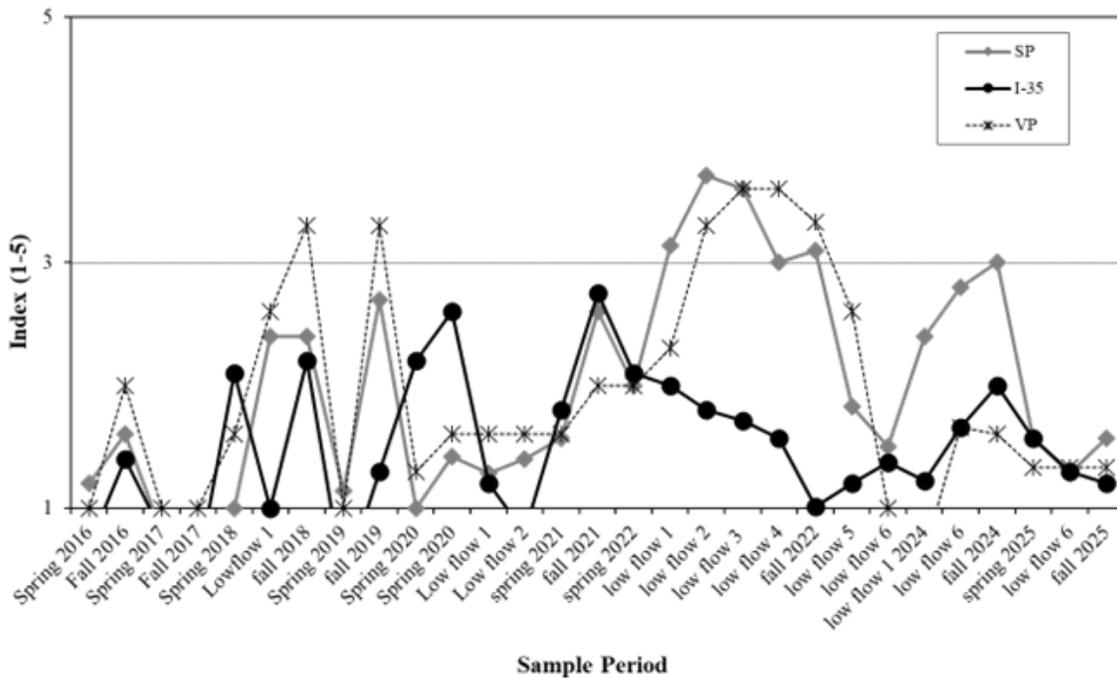


Figure D5. Index for root exposure of Texas Wild-rice stands from 2016–2025.

APPENDIX E: TABLES AND FIGURES

Texas Wild-Rice Mapping

Table E1. Change in cover amount (m²) of Texas Wild-Rice between July/August 2024 and August/September 2025 annual mapping among the Habitat Conservation Plan Long-term Biological Goals (HCP LTBG) river segments.

HCP LTBG RIVER SEGMENTS	JULY/AUGUST 2024 ANNUAL MAPPING COVERAGE	AUGUST/SEPTEMBER 2025 ANNUAL MAPPING COVERAGE	COVERAGE CHANGE	PERCENT CHANGE
Spring Lake	133	106	-28	-21
Spring Lake Dam to Rio Vista Park	9,582	10,743	1,148	12
I-35 Study Reach	986	1,154	160	16
Below I-35	571	583	9	2

**Fish Assemblage Results:
Drop-Net and Fish Community Sampling**

Table E2. Overall number (#) and percent relative abundance (%) of fishes collected from the three long-term biological goals study reaches during drop-net sampling in 2025.

TAXA	SPRING LAKE DAM		CITY PARK		I-35	
	#	%	#	%	#	%
<u>Leuciscidae</u>						
<i>Dionda nigrotaeniata</i>	3	0.61	9	0.53	1	0.26
<i>Notropis amabilis</i>	0	0.00	0	0.00	1	0.26
<u>Characidae</u>						
<i>Astyanax argentatus*</i>	0	0.00	1	0.06	1	0.26
<u>Ictaluridae</u>						
<i>Ameiurus natalis</i>	1	0.20	2	0.12	10	2.56
<u>Loricariidae</u>						
<i>Hypostomus plecostomus*</i>	0	0.00	0	0.00	1	0.26
<u>Poeciliidae</u>						
<i>Gambusia sp.</i>	352	71.84	1072	63.47	126	32.23
<i>Poecilia latipinna</i>	10	2.04	29	1.72	0	0.00
<u>Centrarchidae</u>						
<i>Ambloplites rupestris*</i>	0	0.00	2	0.12	2	0.51
<i>Lepomis cyanellus</i>	0	0.00	0	0.00	1	0.26
<i>Lepomis miniatus</i>	6	1.22	4	0.24	1	0.26
<i>Lepomis sp.</i>	0	0.00	3	0.18	10	2.56
<u>Percidae</u>						
<i>Etheostoma fonticola</i>	108	22.04	566	33.51	232	59.34
<i>Percina apristis</i>	0	0.00	0	0.00	3	0.77
<u>Cichlidae</u>						
<i>Herichthys cyanoguttatus*</i>	10	2.04	1	0.06	2	0.51
Total	490		1689		391	

Asterisks (*) denotes introduced species

Table E3. Overall number (#) and percent relative abundance (%) of fishes collected during fish community sampling in 2025.

TAXA	SPRING LAKE		UPPER RIVER		MIDDLE RIVER		LOWER RIVER	
	#	%	#	%	#	%	#	%
<u>Lepisosteidae</u>								
<i>Lepisosteus oculatus</i>	4	0.1	0	0.0	1	0.1	0	0.0
<u>Leuciscidae</u>								
<i>Alburnops chalybaeus*</i>	0	0.0	12	0.3	46	3.8	0	0.0
<i>Cyprinella venusta</i>	0	0.0	0	0.0	1	0.1	49	6.8
<i>Diona nigrotaeniata</i>	1,258	30.5	65	1.9	407	33.9	1	0.1
<i>Notropis amabilis</i>	0	0.0	8	0.2	142	11.8	169	23.5
<i>Paranotropis volucellus</i>	0	0.0	0	0.0	17	1.4	175	24.4
<u>Catostomidae</u>								
<i>Moxostoma congestum</i>	0	0.0	0	0.0	0	0.0	2	0.3
<u>Characidae</u>								
<i>Astyanax argentatus*</i>	1,365	33.1	198	5.7	157	13.1	20	2.8
<u>Ictaluridae</u>								
<i>Ameiurus natalis</i>	0	0.0	3	0.1	1	0.1	0	0.0
<u>Loricariidae</u>								
<i>Loricariidae sp.</i>	0	0.0	1	0.0	6	0.5	49	6.8
<u>Fundulidae</u>								
<i>Fundulus notatus</i>	120	2.9	10	0.3	0	0.0	0	0.0
<i>Fundulus chrysotus</i>	0	0.0	1	0.0	1	0.1	0	0.0
<u>Poeciliidae</u>								
<i>Gambusia affinis</i>	0	0.0	0	0.0	0	0.0	7	1.0
<i>Gambusia geiseri</i>	0	0.0	2,540	72.9	80	6.7	3	0.4
<i>Gambusia sp.</i>	552	13.4	0	0.0	20	1.7	0	0.0
<i>Poecilia formosa</i>	0	0.0	2	0.1	0	0.0	3	0.4
<i>Poecilia latipinna*</i>	0	0.0	17	0.5	0	0.0	2	0.3
<u>Centrarchidae</u>								
<i>Ambloplites rupestris*</i>	40	1.0	31	0.9	4	0.3	13	1.8
<i>Lepomis auritus*</i>	40	1.0	126	3.6	8	0.7	31	4.3
<i>Lepomis cyanellus</i>	0	0.0	1	0.0	0	0.0	1	0.1
<i>Lepomis gulosus</i>	38	0.9	0	0.0	0	0.0	2	0.3
<i>Lepomis macrochirus</i>	24	0.6	11	0.3	7	0.6	42	5.8
<i>Lepomis aquilensis</i>	95	2.3	0	0.0	0	0.0	1	0.1
<i>Lepomis microlophus</i>	100	2.4	18	0.5	15	1.2	4	0.6
<i>Lepomis miniatus</i>	24	0.6	98	2.8	16	1.3	4	0.6
<i>Lepomis sp.</i>	41	1.0	106	3.0	32	2.7	20	2.8
<i>Micropterus punctatus</i>	106	2.6	19	0.5	16	1.3	10	1.4
<i>Micropterus salmoides</i>	63	1.5	34	1.0	17	1.4	16	2.2
<i>Micropterus treculii</i>	0	0.0	1	0.0	0	0.0	1	0.1

<u>Percidae</u>								
<i>Etheostoma fonticola</i>	174	4.2	157	4.5	194	16.2	47	6.5
<i>Etheostoma spectabile</i>	0	0.0	0	0.0	0	0.0	7	1.0
<i>Percina apristis</i>	0	0.0	11	0.3	11	0.9	21	2.9
<i>Percina carbonaira</i>	69	1.7	0	0.0	0	0.0	12	1.7
<i>Percina sp.</i>	0	0.0	9	0.3	0	0.0	2	0.3
<u>Cichlidae</u>								
<i>Herichthyes cyanoguttatus*</i>	14	0.3	5	0.1	2	0.2	4	0.6
Total	4,127		3,484		1,201		718	

Asterisks (*) denote introduced species

FIGURES

Aquatic Vegetation

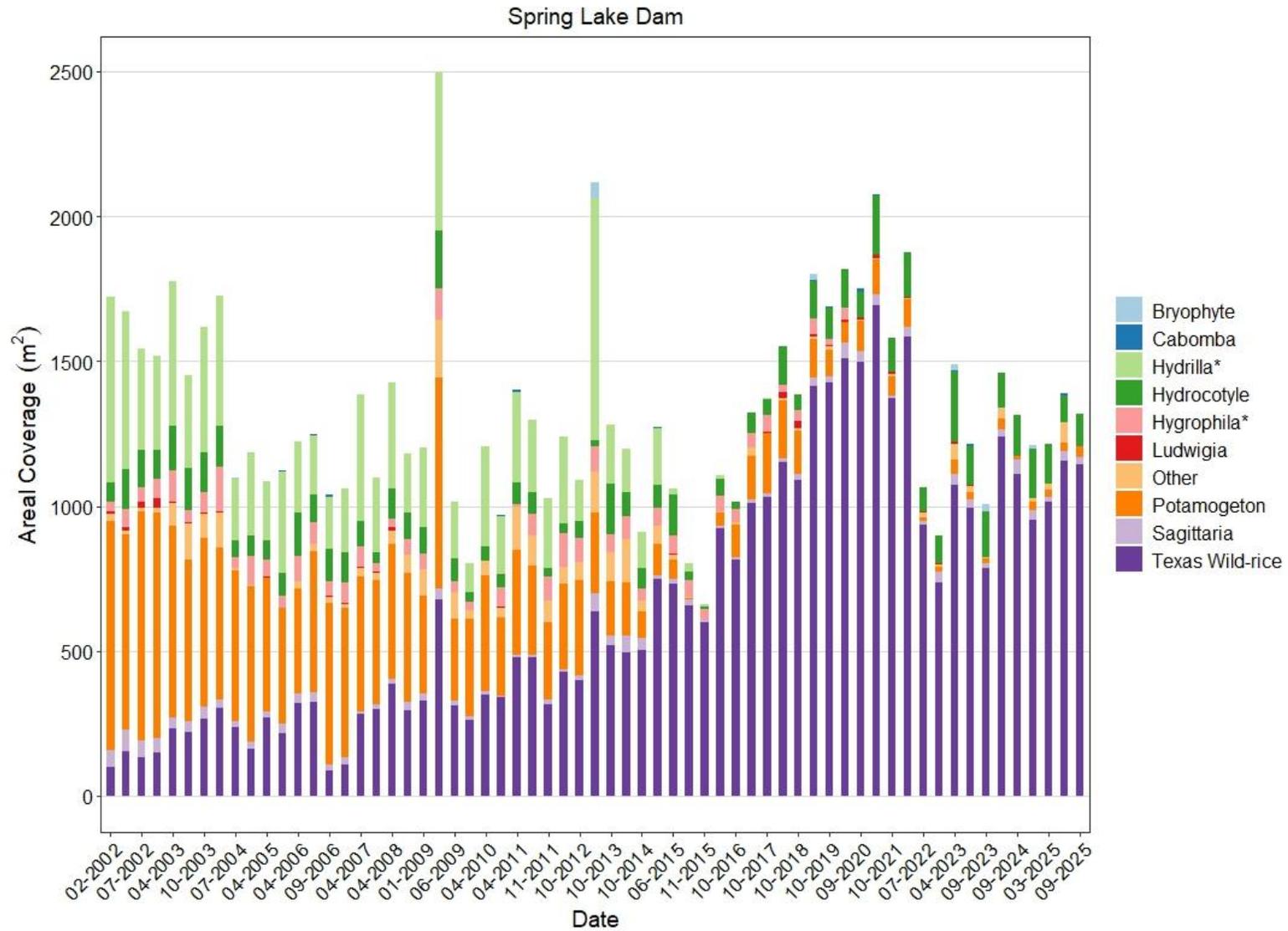


Figure E1. Aquatic vegetation composition (m²) among select taxa from 2002–2025 at Spring Lake Dam.

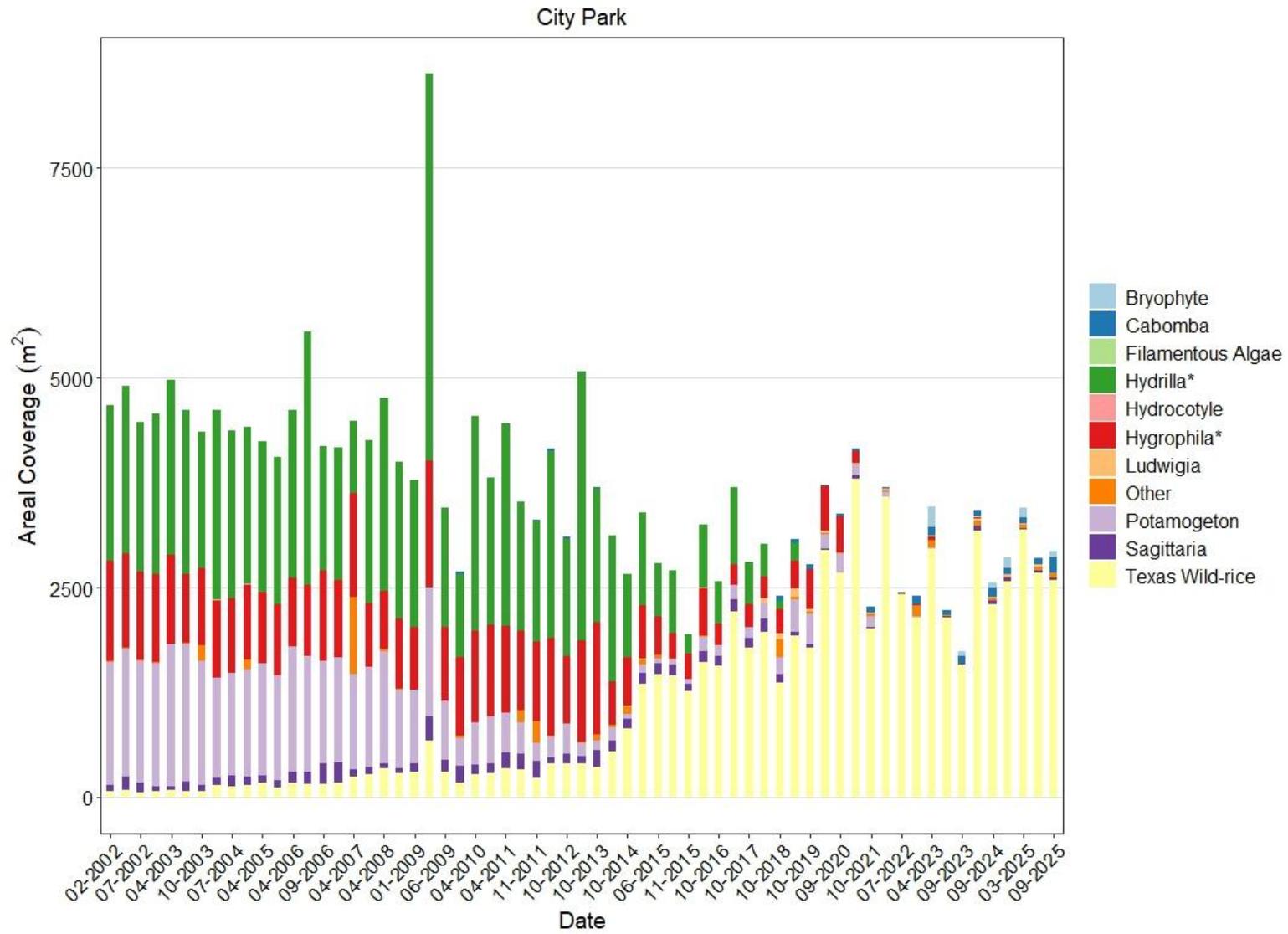


Figure E2. Aquatic vegetation composition (m²) among select taxa from 2002–2025 at City Park.

I-35

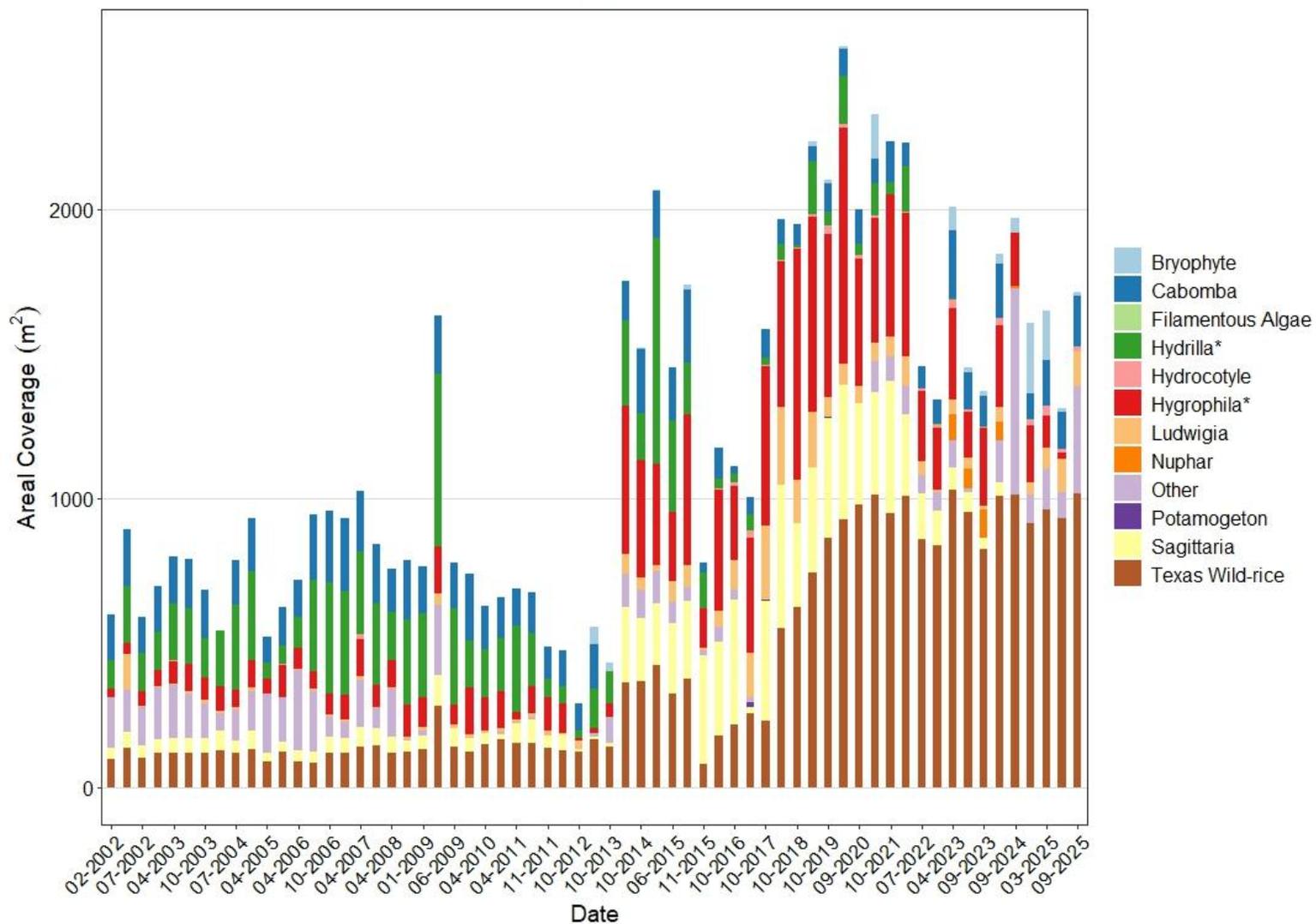


Figure E3. Aquatic vegetation composition (m²) among select taxa from 2002–2025 at I-35.

Fountain Darter

Spring Lake Dam

High-flow Low-flow Routine

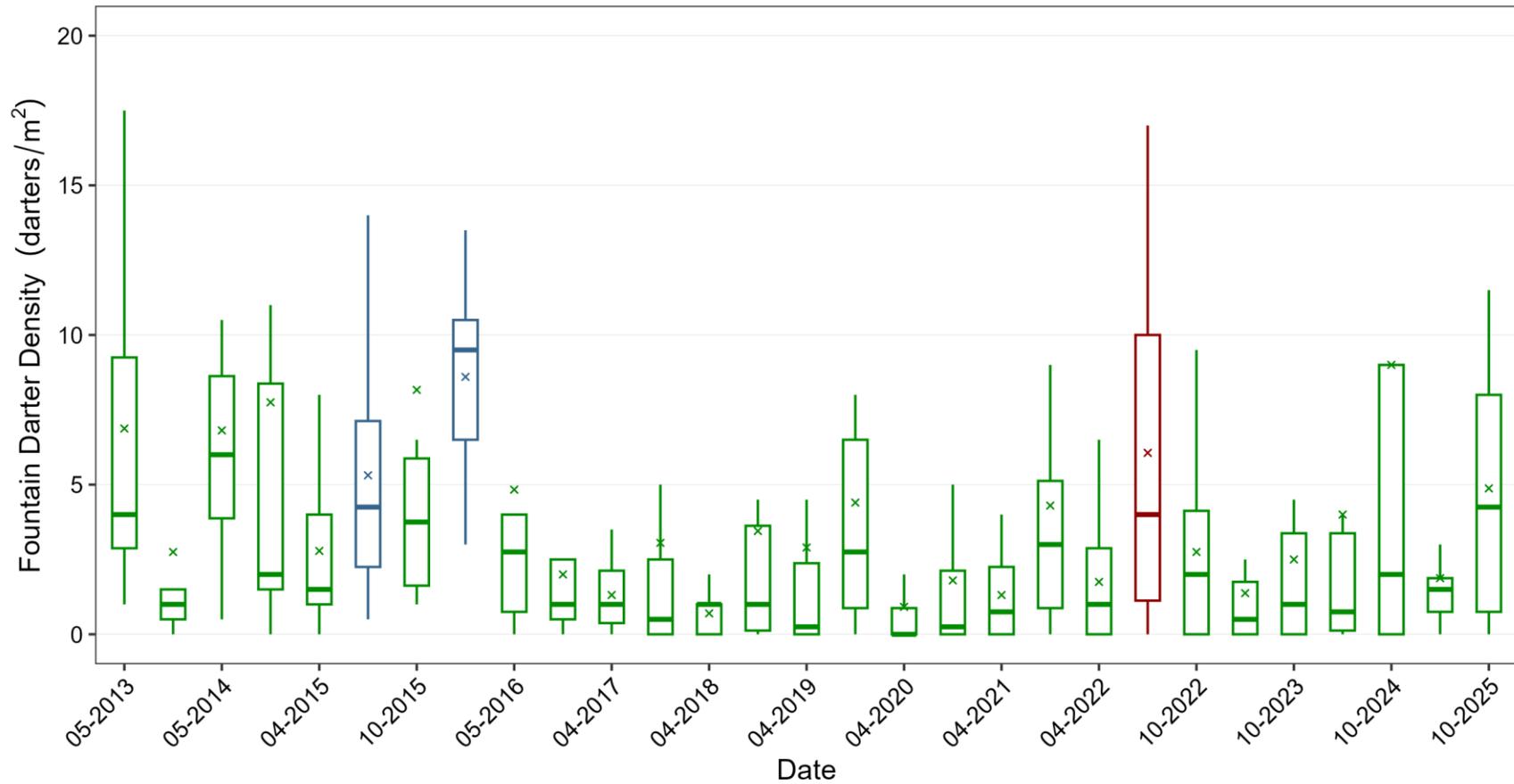


Figure E4. Boxplots displaying temporal trends in Fountain Darter density (darters/m²) from 2013–2025 during drop-net sampling at Spring Lake Dam. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range.

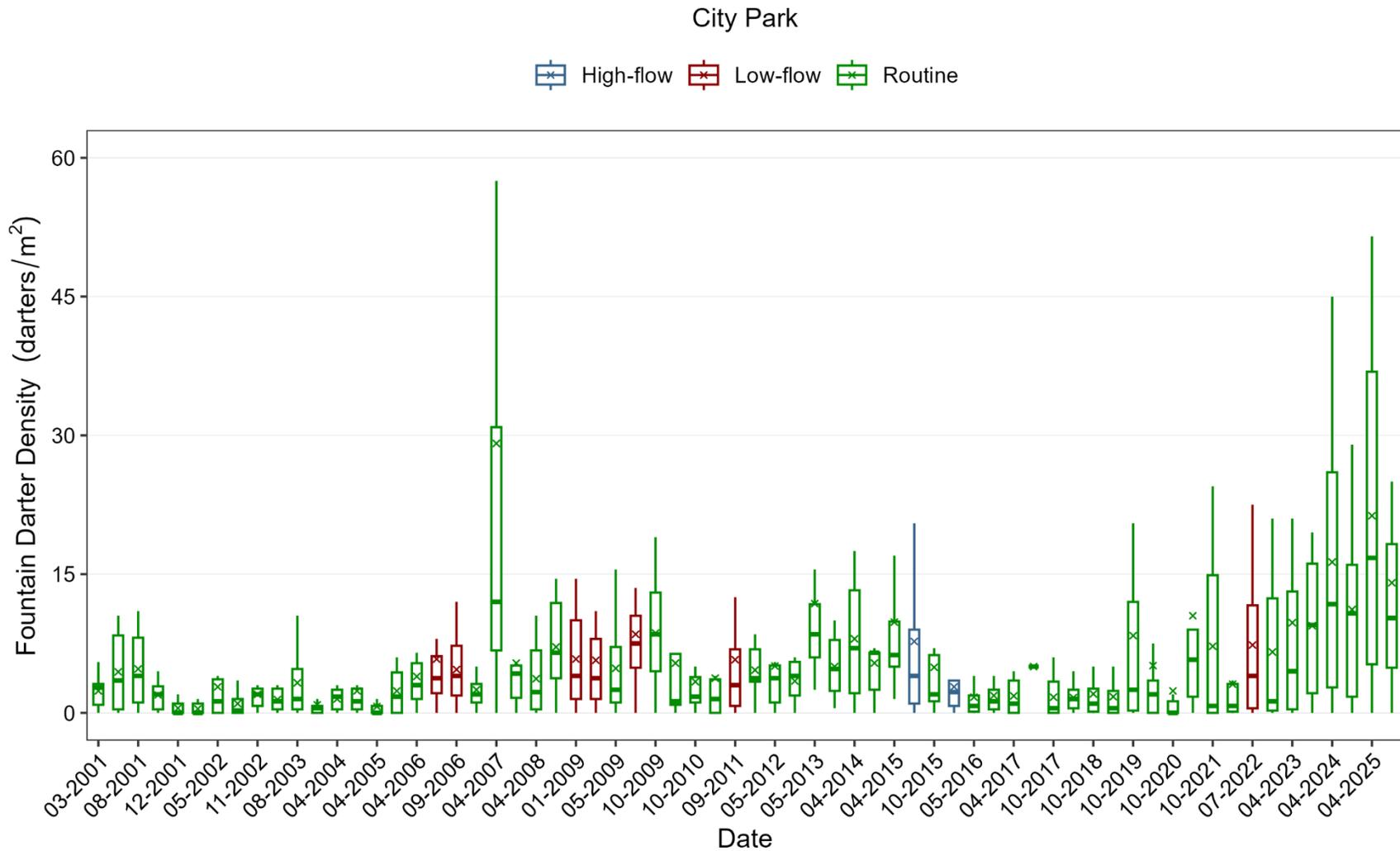


Figure E5. Boxplots displaying temporal trends in Fountain Darter density (darters/m²) from 2001–2025 during drop-net sampling at City Park. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range.

I-35

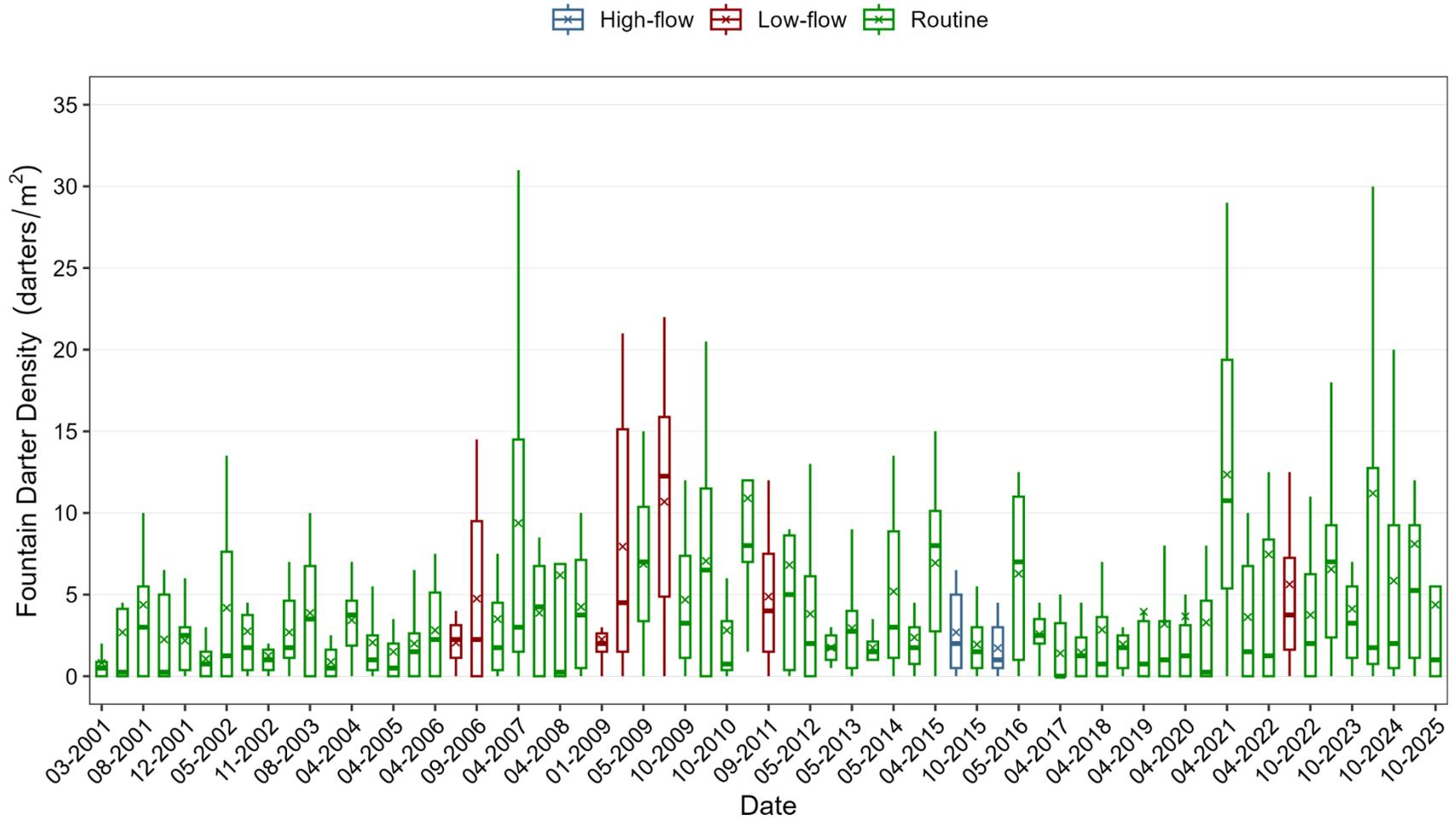


Figure E6. Boxplots displaying temporal trends in Fountain Darter density (darters/m²) from 2001–2025 during drop-net sampling at I-35. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range.

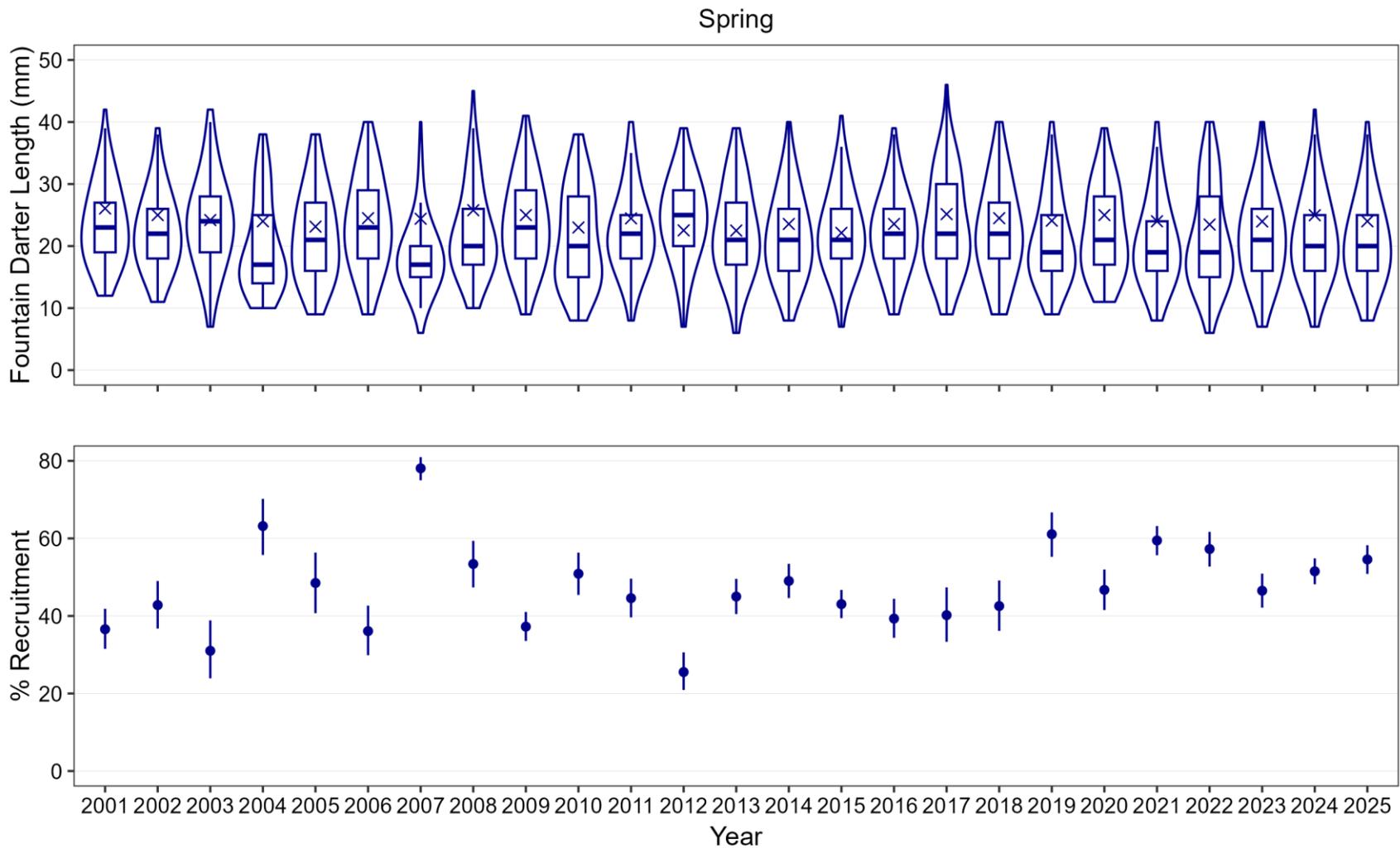


Figure E7. Fountain Darter size structure (mm; top row) and percent recruitment (bottom row) in the San Marcos Springs and River during spring sampling (i.e., drop-net and timed dip-net data) events from 2001–2025. Size structure is displayed with boxplots (median, quartiles, range) and violin plots (probability density; polygons outlining boxplots). The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. Recruitment is the percent relative abundance ($\pm 95\%$ CI) of darters ≤ 20 mm.

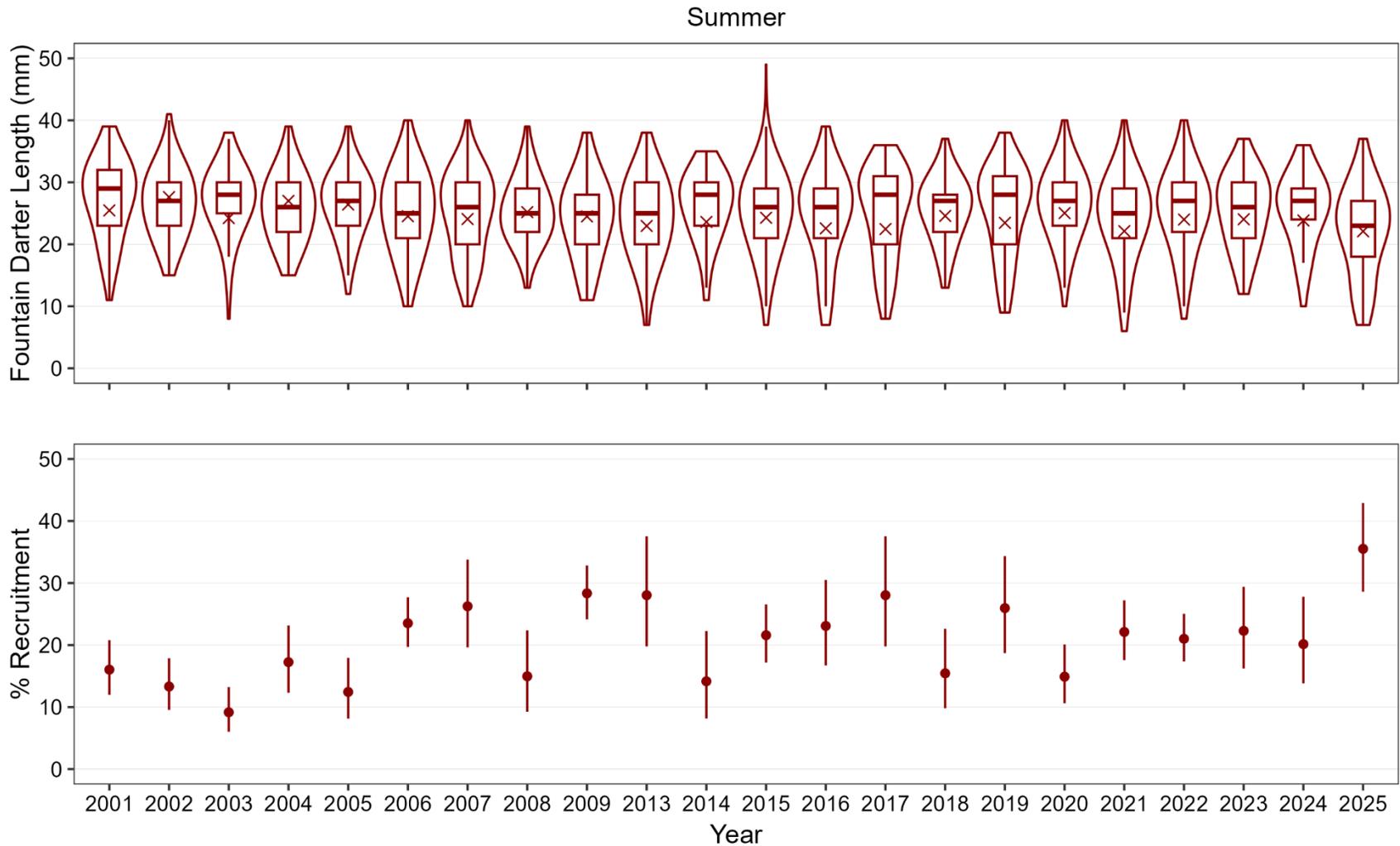


Figure E8. Fountain Darter size structure (mm; top row) and percent recruitment (bottom row) in the San Marcos Springs and River during summer sampling (i.e., drop-net and timed dip-net data) events from 2001–2025. Size structure is displayed with boxplots (median, quartiles, range) and violin plots (probability density; polygons outlining boxplots). The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. Recruitment is the percent relative abundance (\pm 95% CI) of darters ≤ 20 mm.

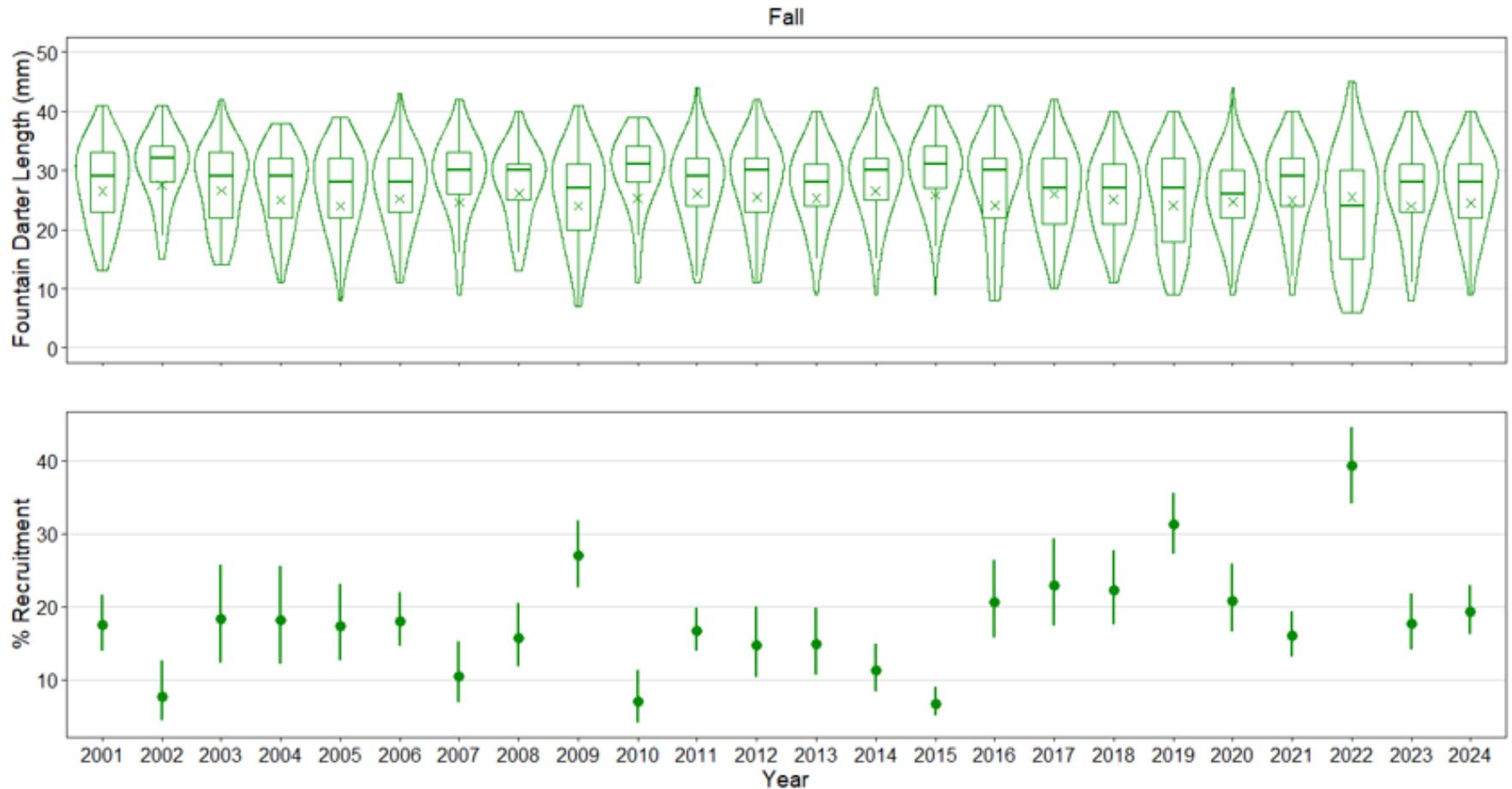


Figure E9. Fountain Darter size structure (mm; top row) and percent recruitment (bottom row) in the San Marcos Springs and River during fall sampling (i.e., drop-net and timed dip-net data) events from 2001–2025. Size structure is displayed with boxplots (median, quartiles, range) and violin plots (probability density; polygons outlining boxplots). The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range. Recruitment is the percent relative abundance (\pm 95% CI) of darters \leq 20 mm.

Spring Lake Dam

High-flow Low-flow Routine

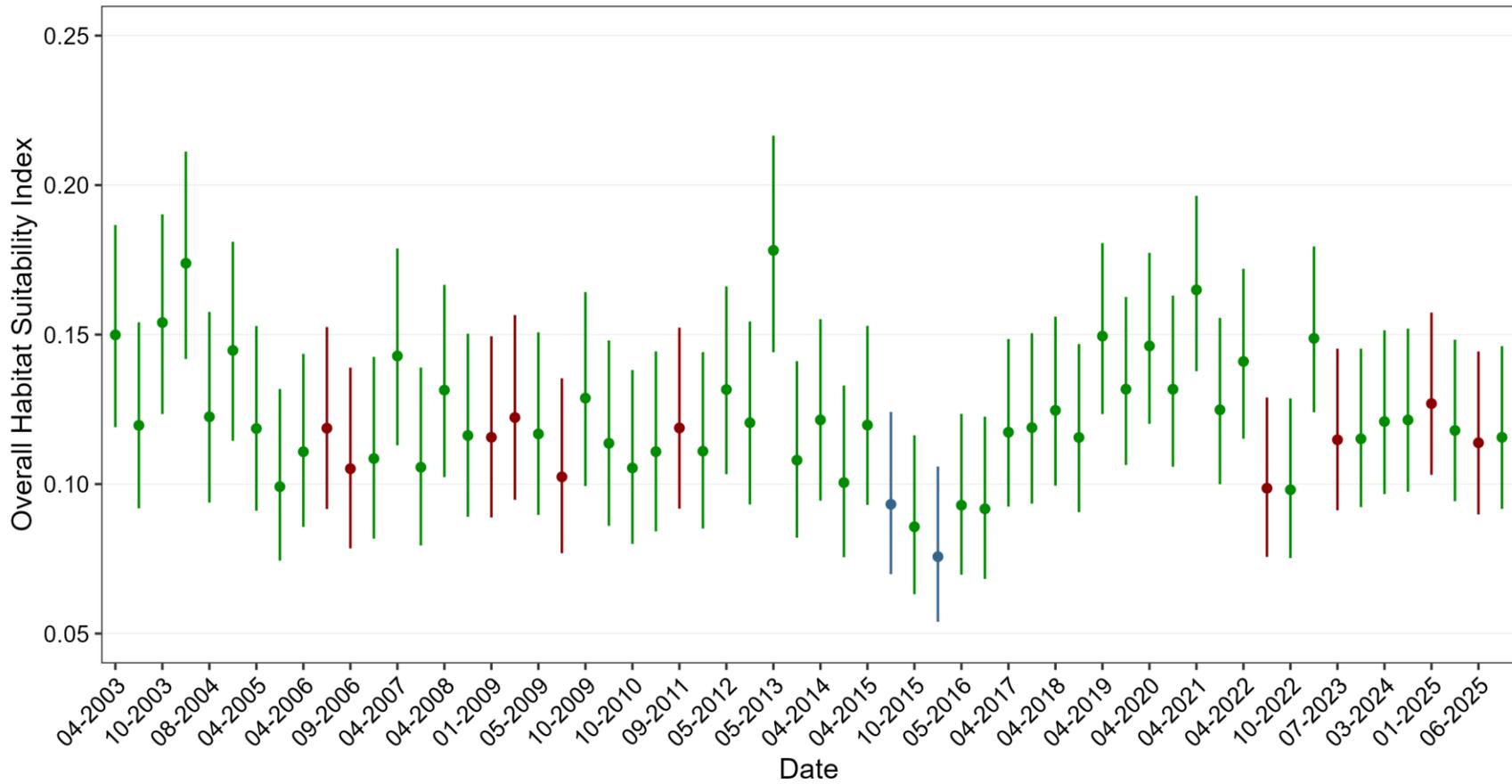


Figure E10. Overall Habitat Suitability Index (OHSI) ($\pm 95\%$ CI) from 2003–2025 at Spring Lake Dam.

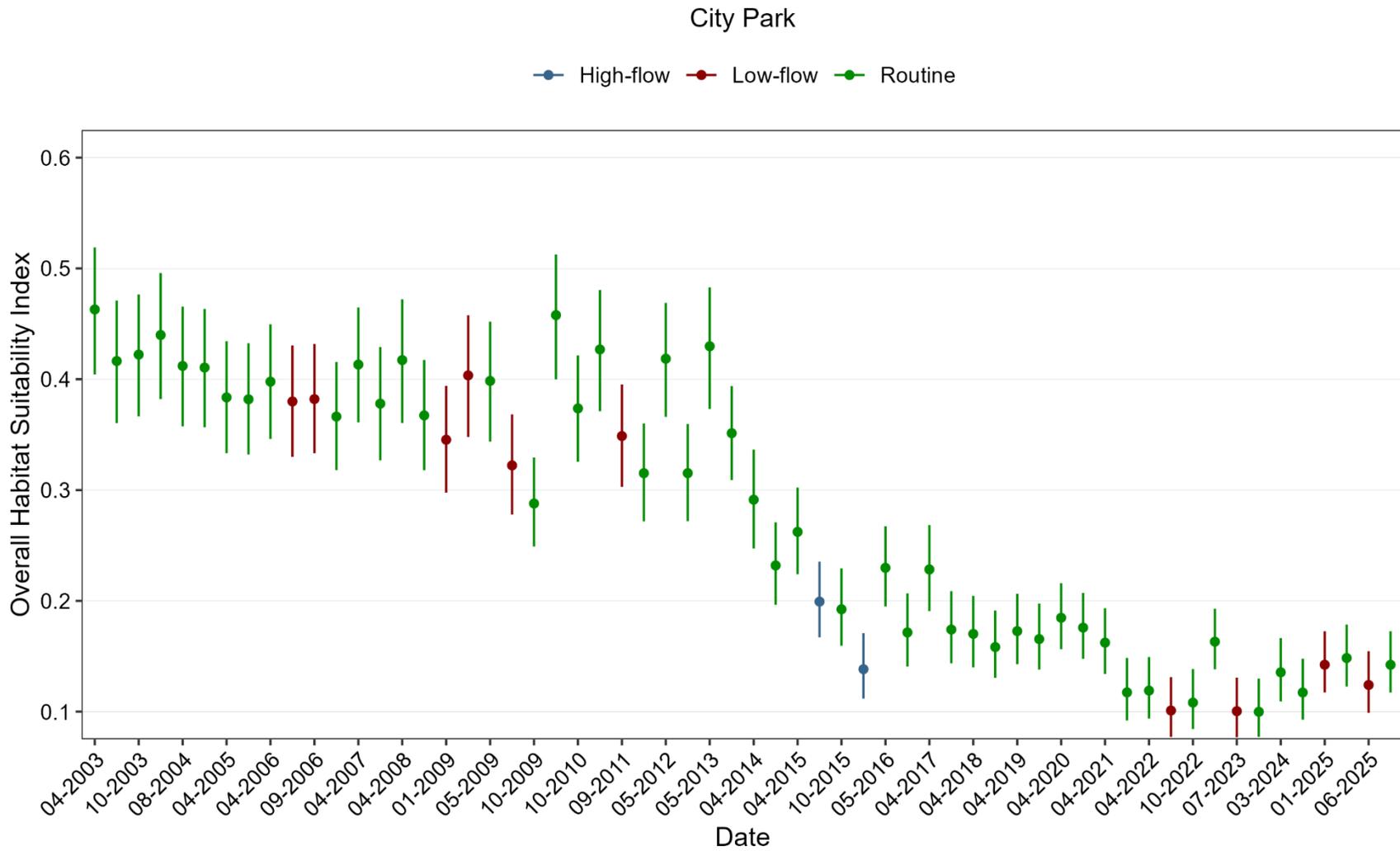


Figure E11. Overall Habitat Suitability Index (OHSI) ($\pm 95\%$ CI) from 2003–2025 at City Park.

I-35

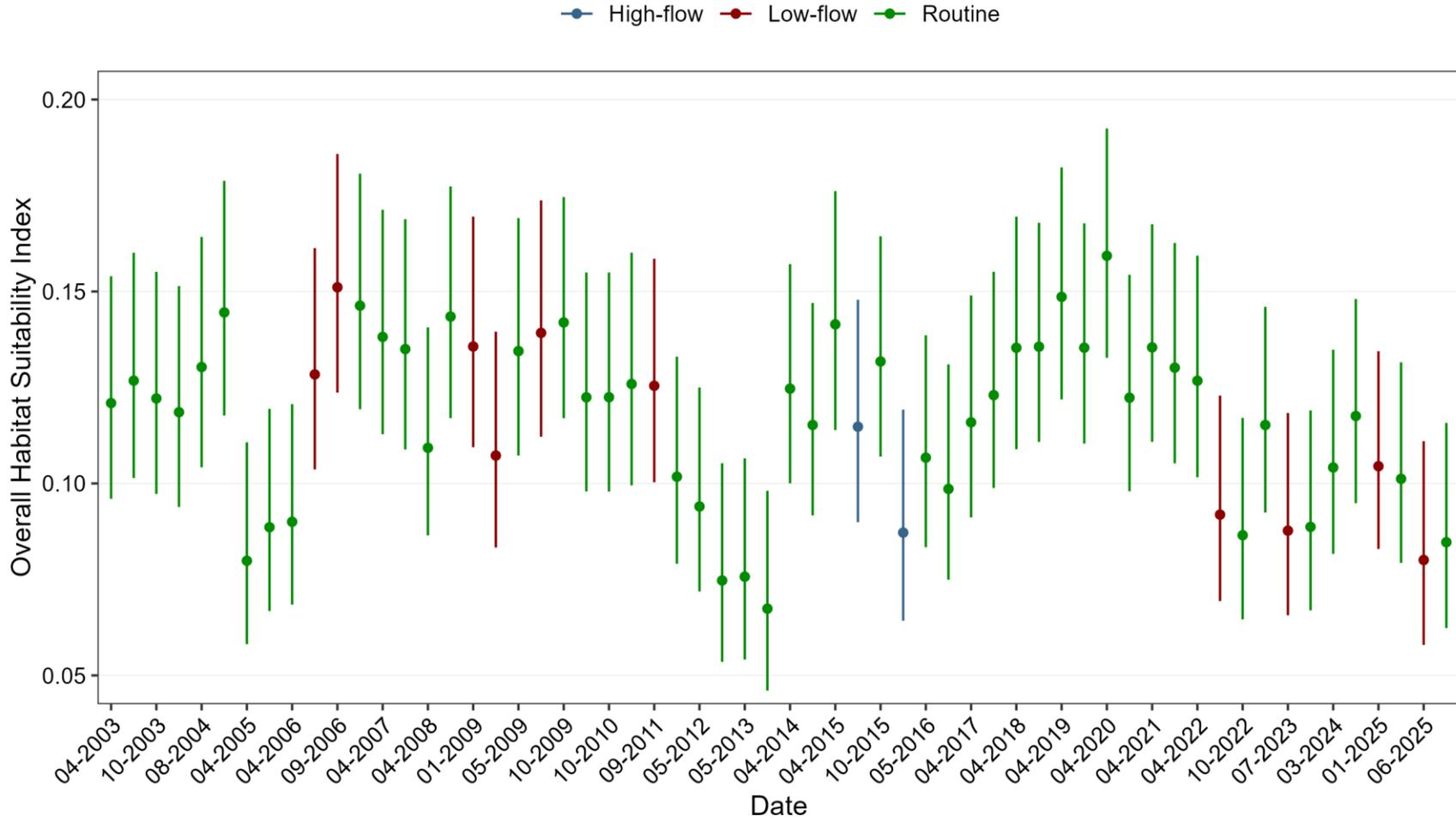


Figure E12. Overall Habitat Suitability Index (OHSI) ($\pm 95\%$ CI) from 2003–2025 at I-35.

Fish Community

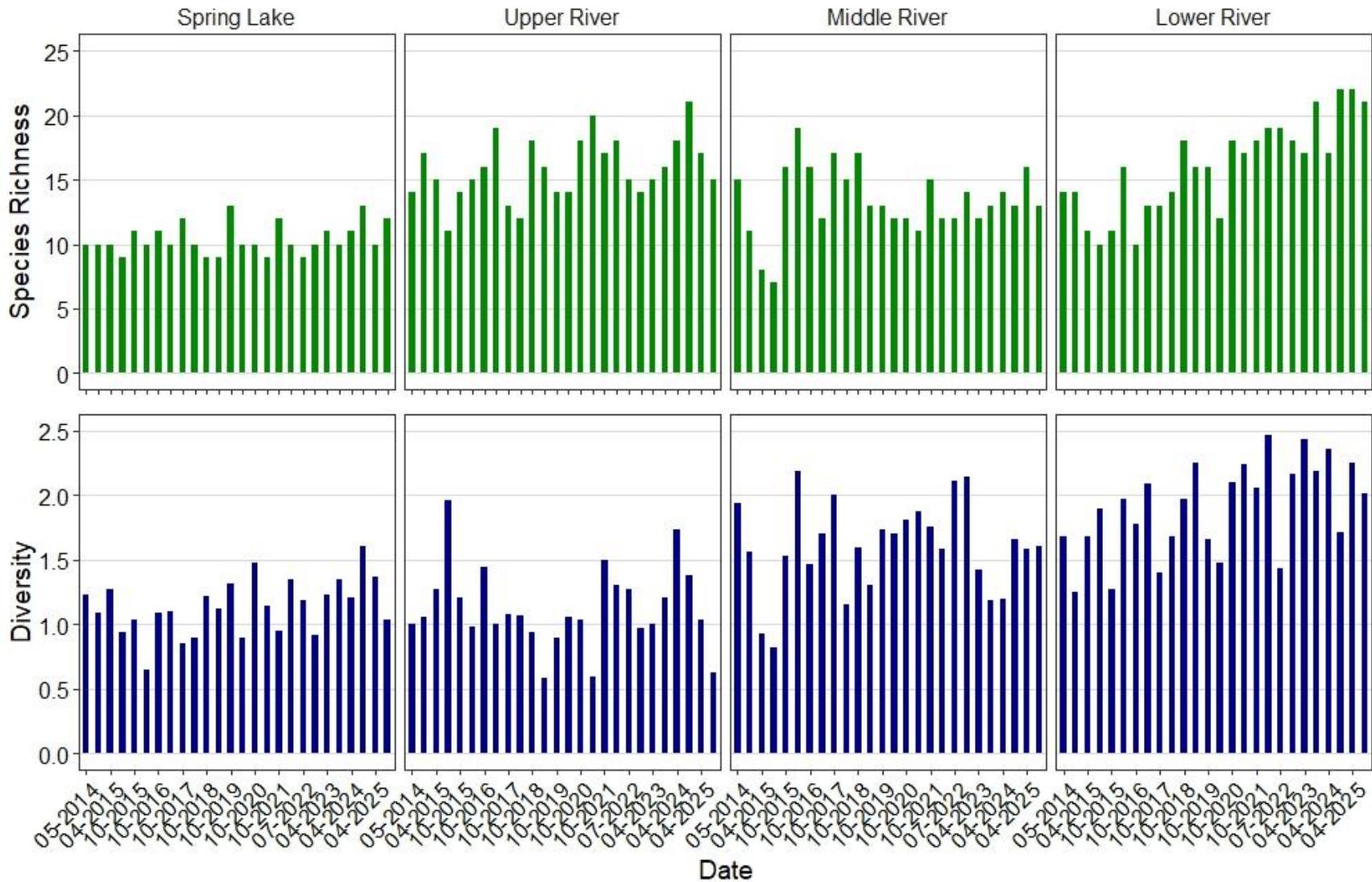


Figure E13. Bar graphs displaying temporal trends in species richness and diversity among study reaches from 2014–2025 during fish community sampling in the San Marcos Springs/River.

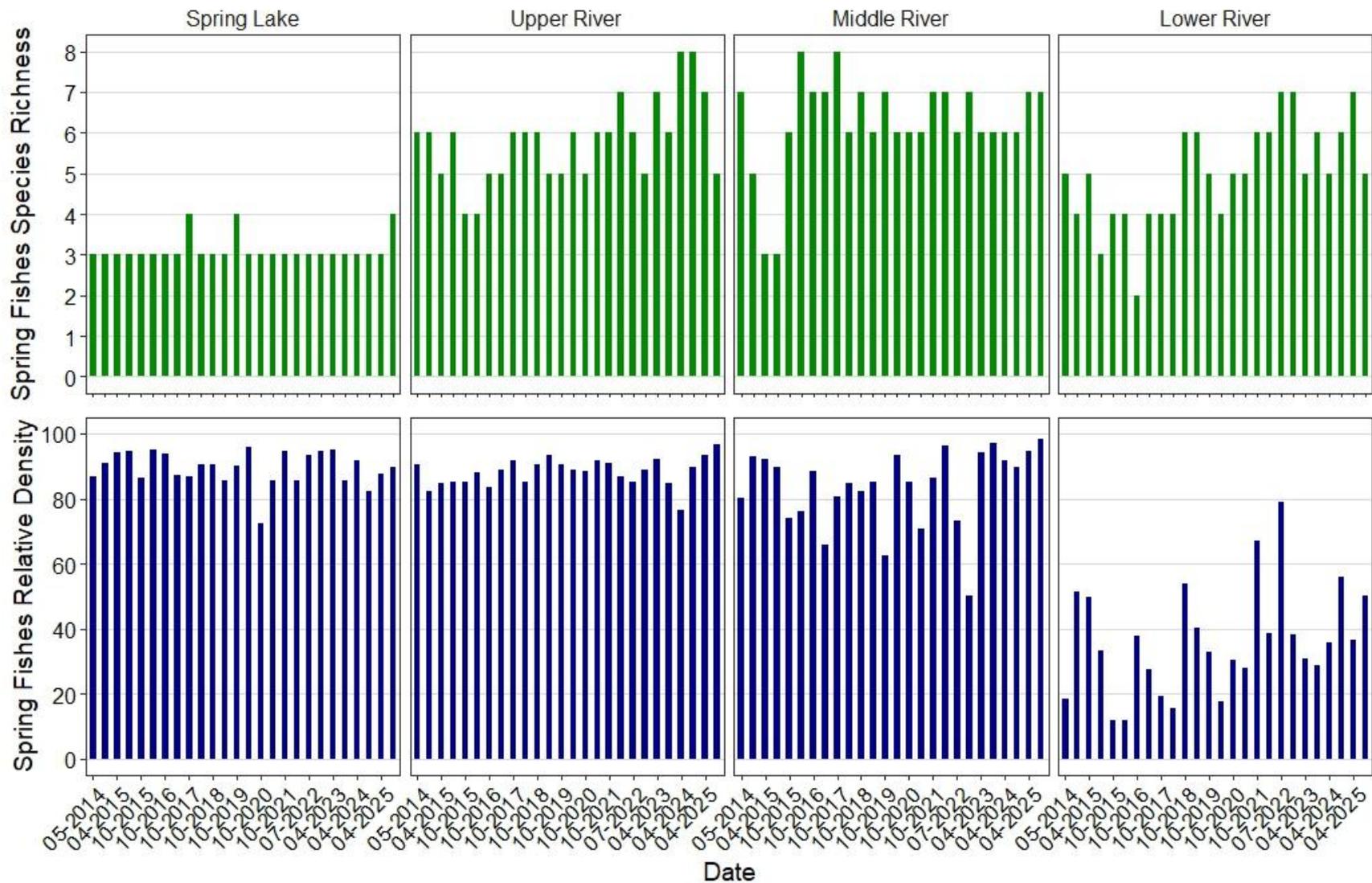


Figure E14. Bar graphs displaying temporal trends in spring fishes species richness and percent relative density among study reaches from 2014–2025 during fish community sampling in the San Marcos Springs/River.

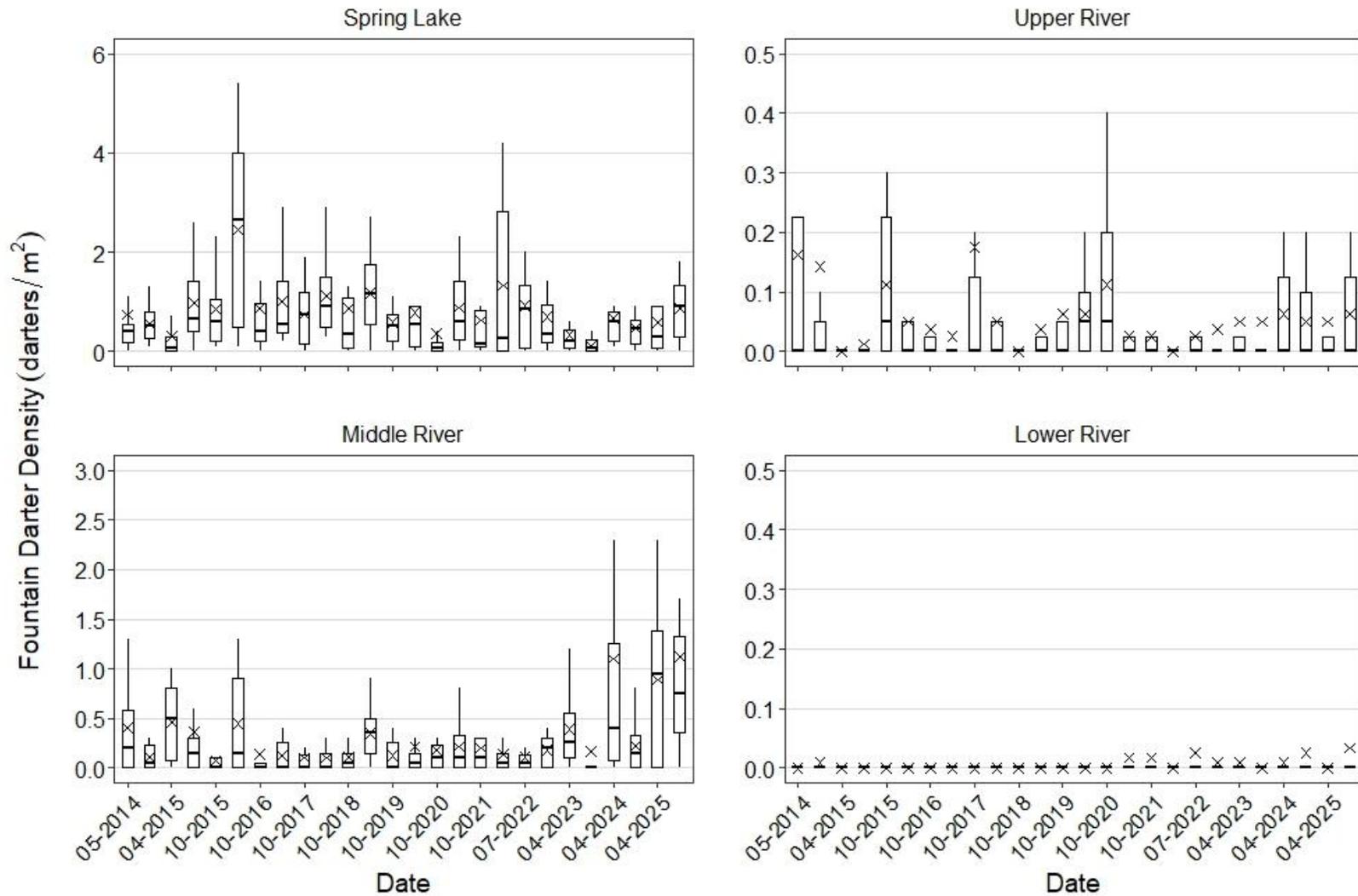


Figure E15. Boxplots displaying temporal trends in Fountain Darter density (darters/m²) among study reaches from 2014–2025 during fish community microhabitat sampling in the San Marcos Springs/River. The thick horizontal line in each box is the median, x represents the mean, and the upper/lower bounds of each box represents the interquartile range. Whiskers represent minimum/maximum values up to 1.5 times the interquartile range.

San Marcos Salamander

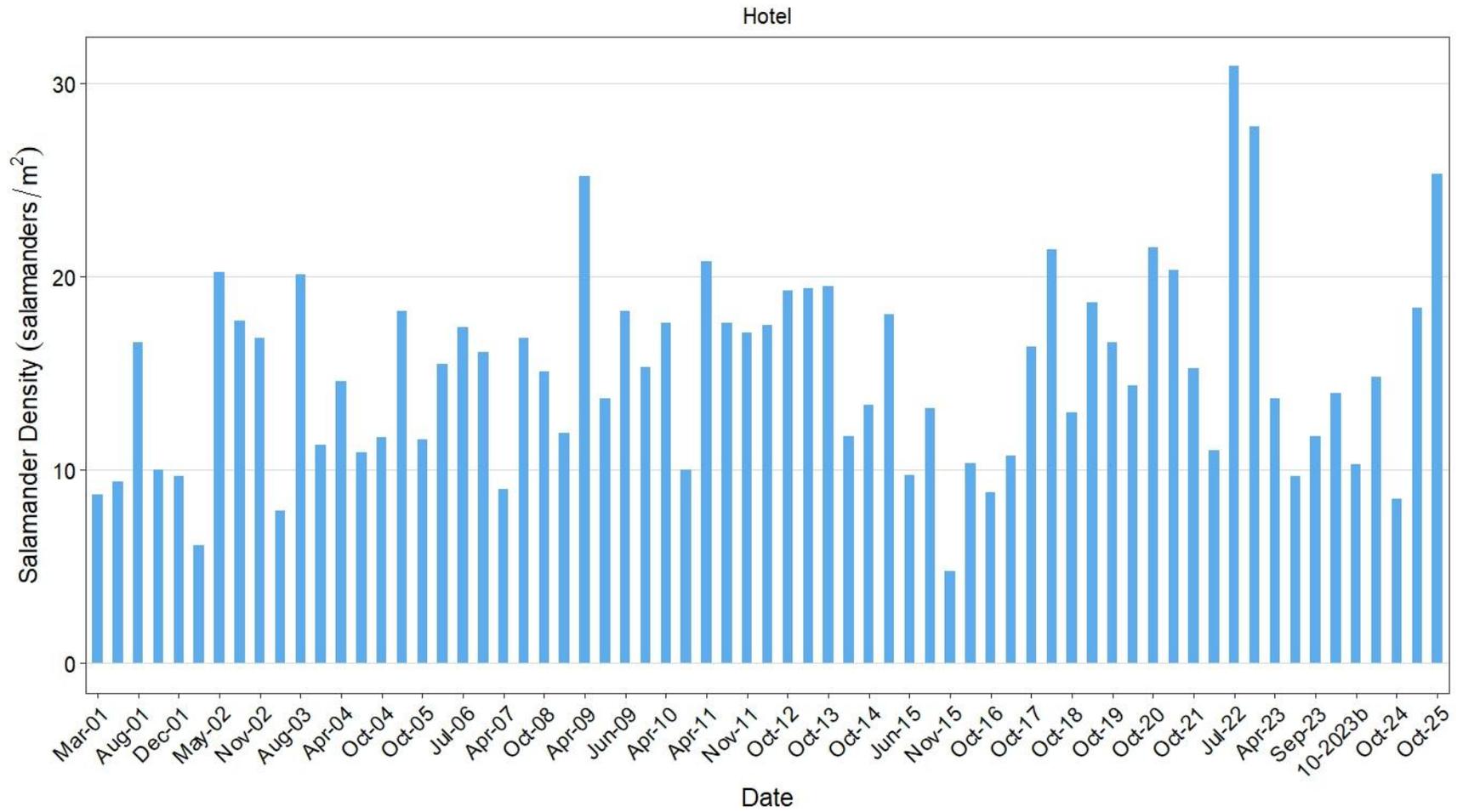


Figure E16. San Marcos Salamander density from 2001–2025 at the Hotel Site.

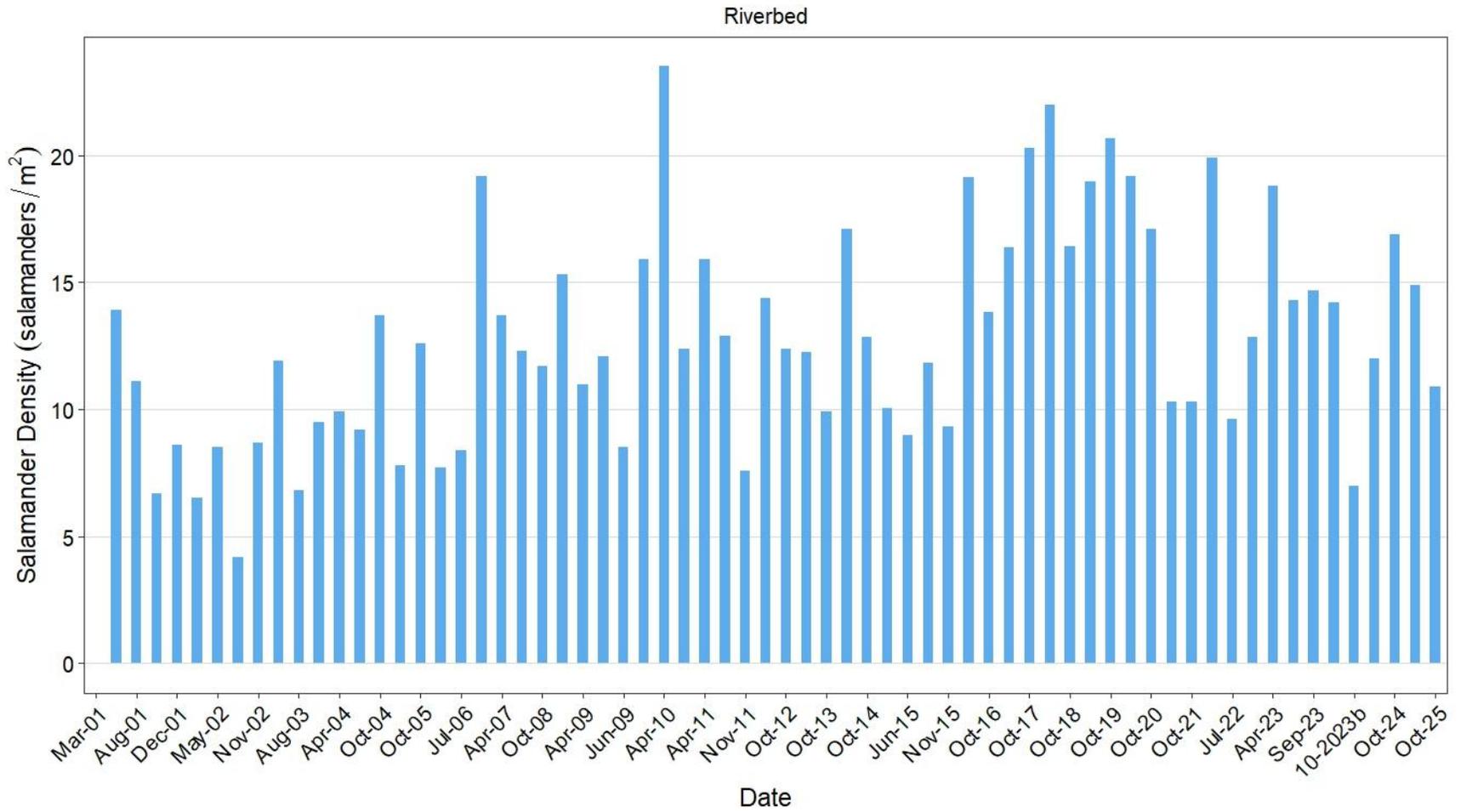


Figure E17. San Marcos Salamander density from 2001–2025 at the Riverbed Site.

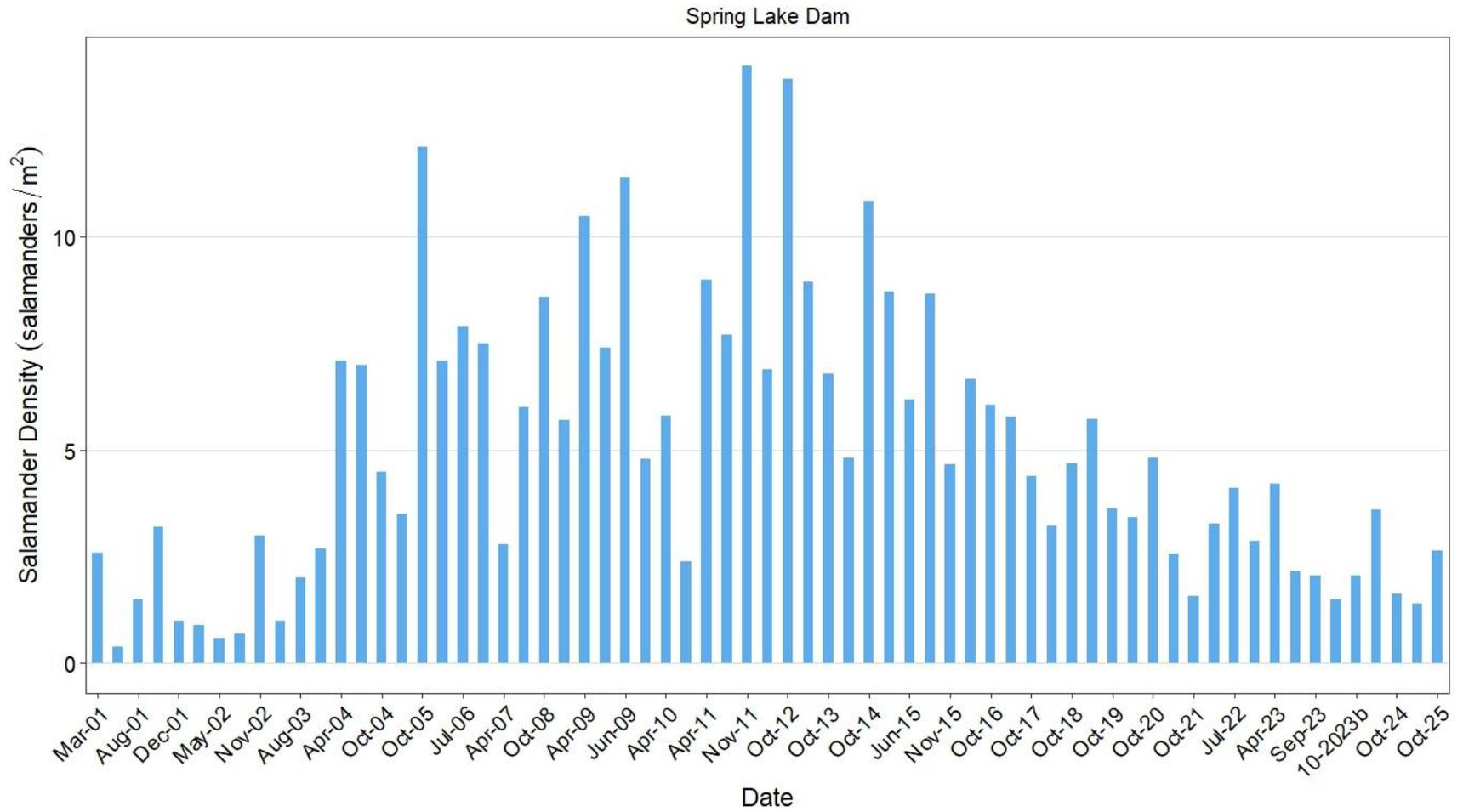


Figure E18. San Marcos Salamander density from 2001–2025 at the Spring Lake Dam Site.

APPENDIX F: MACROINVERTEBRATE RAW DATA

Site	Date	Season	Class	Order	Family	FinalID	Counts
City Park	4/17/2025	Spring	Clitellata			Hirudinea	1
City Park	4/17/2025	Spring	Clitellata			Oligochaeta	3
City Park	4/17/2025	Spring	Gastropoda		Pleuroceridae	Elimia	25
City Park	4/17/2025	Spring	Gastropoda		Thiaridae	Melanoides tuberculata	11
City Park	4/17/2025	Spring	Insecta	Ephemeroptera	Baetidae	Fallceon	3
City Park	4/17/2025	Spring	Insecta	Ephemeroptera	Caenidae	Caenis	1
City Park	4/17/2025	Spring	Insecta	Ephemeroptera	Leptohyphidae	Tricorythodes	27
City Park	4/17/2025	Spring	Insecta	Trichoptera	Glossosomatidae	Protoptila	1
City Park	4/17/2025	Spring	Insecta	Trichoptera	Leptoceridae	Nectopsyche	3
City Park	4/17/2025	Spring	Malacostraca	Amphipoda	Hyaellidae	Hyaella	71
City Park	4/17/2025	Spring		Tricladida	Dugesiidae	Dugesia	2
I-35	4/17/2025	Spring	Bivalvia	Venerida	Cyrenidae	Corbicula	2
I-35	4/17/2025	Spring	Gastropoda		Pleuroceridae	Elimia	24
I-35	4/17/2025	Spring	Gastropoda		Thiaridae	Melanoides tuberculata	15
I-35	4/17/2025	Spring	Insecta	Coleoptera	Elmidae	Macrelmis	1
I-35	4/17/2025	Spring	Insecta	Coleoptera	Elmidae	Microcylloepus pusillus	1
I-35	4/17/2025	Spring	Insecta	Ephemeroptera	Leptohyphidae	Leptohyphes	2
I-35	4/17/2025	Spring	Insecta	Ephemeroptera	Leptohyphidae	Tricorythodes	12
I-35	4/17/2025	Spring	Insecta	Ephemeroptera	Leptophlebiidae	Thraulodes	13

I-35	4/17/2025	Spring	Insecta	Hemiptera	Naucoridae	Ambrysus circumcinctus	3
I-35	4/17/2025	Spring	Insecta	Hemiptera	Naucoridae	Ambrysus lunatus	1
I-35	4/17/2025	Spring	Insecta	Hemiptera	Naucoridae	Limnocoris lutzi	10
I-35	4/17/2025	Spring	Insecta	Odonata	Gomphidae	Erpetogomphus	1
I-35	4/17/2025	Spring	Insecta	Odonata	Libellulidae	Brechmorhoga	2
I-35	4/17/2025	Spring	Insecta	Trichoptera	Glossosomatidae	Protoptila	9
I-35	4/17/2025	Spring	Insecta	Trichoptera	Helicopsychidae	Helicopsyche	28
I-35	4/17/2025	Spring	Insecta	Trichoptera	Leptoceridae	Nectopsyche	11
I-35	4/17/2025	Spring	Insecta	Trichoptera	Philopotamidae	Chimarra	1
I-35	4/17/2025	Spring	Malacostraca	Amphipoda	Hyaellidae	Hyaella	18
I-35	4/17/2025	Spring		Tricladida	Dugesiidae	Dugesia	11
Spring Lake	4/17/2025	Spring	Clitellata			Oligochaeta	4
Spring Lake	4/17/2025	Spring	Gastropoda		Physidae	Physella	1
Spring Lake	4/17/2025	Spring	Gastropoda		Pleuroceridae	Elimia	6
Spring Lake	4/17/2025	Spring	Insecta	Coleoptera	Psephenidae	Psephenus texanus	2
Spring Lake	4/17/2025	Spring	Insecta	Diptera	Ceratopogonidae	Bezzia	4
Spring Lake	4/17/2025	Spring	Insecta	Diptera	Chironomidae	Chironomidae	3
Spring Lake	4/17/2025	Spring	Insecta	Ephemeroptera	Baetidae	Callibaetis	4
Spring Lake	4/17/2025	Spring	Insecta	Ephemeroptera	Leptohyphidae	Tricorythodes	20
Spring Lake	4/17/2025	Spring	Insecta	Hemiptera	Nepidae	Ranatra nigra	1

Spring Lake	4/17/2025	Spring	Insecta	Odonata	Libellulidae	Perithemis	1
Spring Lake	4/17/2025	Spring	Insecta	Trichoptera	Helicopsychidae	Helicopsyche	1
Spring Lake	4/17/2025	Spring	Malacostraca	Amphipoda	Hyaellidae	Hyaella	162
Spring Lake	4/17/2025	Spring	Malacostraca	Decapoda	Cambaridae	Cambaridae	1
Spring Lake	4/17/2025	Spring	Malacostraca	Decapoda	Palaemonidae	Palaemon	1
Spring Lake Dam	4/17/2025	Spring	Clitellata			Oligochaeta	7
Spring Lake Dam	4/17/2025	Spring	Gastropoda		Pleuroceridae	Elimia	6
Spring Lake Dam	4/17/2025	Spring	Gastropoda		Thiaridae	Melanoides tuberculata	3
Spring Lake Dam	4/17/2025	Spring	Insecta	Coleoptera	Elmidae	Macrelmis	2
Spring Lake Dam	4/17/2025	Spring	Insecta	Coleoptera	Psephenidae	Psephenus texanus	2
Spring Lake Dam	4/17/2025	Spring	Insecta	Decapoda	Simuliidae	Simulium	5
Spring Lake Dam	4/17/2025	Spring	Insecta	Diptera	Chironomidae	Chironomidae	4
Spring Lake Dam	4/17/2025	Spring	Insecta	Diptera	Stratiomyidae	Stratiomys	1
Spring Lake Dam	4/17/2025	Spring	Insecta	Ephemeroptera	Leptohyphidae	Leptohyphes	11
Spring Lake Dam	4/17/2025	Spring	Insecta	Ephemeroptera	Leptophlebiidae	Thraulodes	11
Spring Lake Dam	4/17/2025	Spring	Insecta	Hemiptera	Naucoridae	Ambrysus circumcinctus	16
Spring Lake Dam	4/17/2025	Spring	Insecta	Hemiptera	Naucoridae	Ambrysus lunatus	5
Spring Lake Dam	4/17/2025	Spring	Insecta	Lepidoptera	Crambidae	Crambidae	1
Spring Lake Dam	4/17/2025	Spring	Insecta	Megaloptera	Corydalidae	Corydalus	3
Spring Lake Dam	4/17/2025	Spring	Insecta	Odonata	Coenagrionidae	Argia	3

Spring Lake Dam	4/17/2025	Spring	Insecta	Odonata	Libellulidae	Erythemis	1
Spring Lake Dam	4/17/2025	Spring	Insecta	Trichoptera	Helicopsychidae	Helicopsyche	6
Spring Lake Dam	4/17/2025	Spring	Insecta	Trichoptera	Philopotamidae	Chimarra	28
Spring Lake Dam	4/17/2025	Spring	Insecta	Trichoptera		Trichoptera	2
Spring Lake Dam	4/17/2025	Spring	Malacostraca	Amphipoda	Hyaellidae	Hyaella	41
Spring Lake Dam	4/17/2025	Spring	Malacostraca	Decapoda	Cambaridae	Cambaridae	1
Spring Lake Dam	4/17/2025	Spring		Tricladida	Dugesiidae	Dugesia	13
City Park	10/14/2025	Fall	Gastropoda		Pleuroceridae	Elimia	5
City Park	10/14/2025	Fall	Gastropoda		Thiaridae	Melanoides tuberculata	3
City Park	10/14/2025	Fall	Insecta	Ephemeroptera	Baetidae	Fallceon	8
City Park	10/14/2025	Fall	Insecta	Ephemeroptera	Leptohyphidae	Tricorythodes	58
City Park	10/14/2025	Fall	Insecta	Trichoptera	Leptoceridae	Nectopsyche	2
City Park	10/14/2025	Fall	Malacostraca	Amphipoda	Hyaellidae	Hyaella	63
City Park	10/14/2025	Fall		Tricladida	Dugesiidae	Dugesia	13
I-35	10/14/2025	Fall	Gastropoda		Pleuroceridae	Elimia	3
I-35	10/14/2025	Fall	Gastropoda		Thiaridae	Melanoides tuberculata	14
I-35	10/14/2025	Fall	Insecta	Coleoptera	Elmidae	Microcylloepus pusillus	1
I-35	10/14/2025	Fall	Insecta	Coleoptera	Elmidae	Stenelmis	1
I-35	10/14/2025	Fall	Insecta	Coleoptera	Hydrophilidae	Helochaers	1
I-35	10/14/2025	Fall	Insecta	Coleoptera	Scirtidae	Contacyphon	1

I-35	10/14/2025	Fall	Insecta	Diptera	Chironomidae	Chironomidae	4
I-35	10/14/2025	Fall	Insecta	Ephemeroptera	Baetidae	Fallceon	1
I-35	10/14/2025	Fall	Insecta	Ephemeroptera	Leptohyphidae	Leptohyphes	1
I-35	10/14/2025	Fall	Insecta	Ephemeroptera	Leptohyphidae	Tricorythodes	6
I-35	10/14/2025	Fall	Insecta	Ephemeroptera	Leptophlebiidae	Thraulodes	58
I-35	10/14/2025	Fall	Insecta	Hemiptera	Naucoridae	Ambrysus lunatus	1
I-35	10/14/2025	Fall	Insecta	Hemiptera	Naucoridae	Limnocoris lutzi	8
I-35	10/14/2025	Fall	Insecta	Odonata	Libellulidae	Brechmorhoga	1
I-35	10/14/2025	Fall	Insecta	Trichoptera	Glossosomatidae	Protoptila	4
I-35	10/14/2025	Fall	Insecta	Trichoptera	Helicopsychidae	Helicopsyche	2
I-35	10/14/2025	Fall	Insecta	Trichoptera	Leptoceridae	Nectopsyche	2
I-35	10/14/2025	Fall	Insecta	Trichoptera	Philopotamidae	Chimarra	2
I-35	10/14/2025	Fall	Malacostraca	Amphipoda	Hyalellidae	Hyalella	4
I-35	10/14/2025	Fall		Tricladida	Dugesiidae	Dugesia	29
Spring Lake	10/14/2025	Fall	Clitellata	Hirudinida	Glossophiidae	Helobdella	1
Spring Lake	10/14/2025	Fall	Gastropoda	Neotaenioglossa	Hydrobiidae	Hydrobiidae	1
Spring Lake	10/14/2025	Fall	Gastropoda		Physidae	Physella	2
Spring Lake	10/14/2025	Fall	Gastropoda		Pleuroceridae	Elimia	1
Spring Lake	10/14/2025	Fall	Insecta	Ephemeroptera	Baetidae	Callibaetis	6
Spring Lake	10/14/2025	Fall	Insecta	Ephemeroptera	Leptohyphidae	Tricorythodes	13

Spring Lake	10/14/2025	Fall	Insecta	Odonata	Calopterygidae	Hetaerina	1
Spring Lake	10/14/2025	Fall	Malacostraca	Amphipoda	Hyalellidae	Hyalella	180
Spring Lake	10/14/2025	Fall	Malacostraca	Decapoda	Cambaridae	Cambaridae	5
Spring Lake	10/14/2025	Fall	Malacostraca	Decapoda	Palaemonidae	Palaemon	2
Spring Lake	10/14/2025	Fall		Tricladida	Dugesiidae	Dugesia	1
Spring Lake Dam	10/14/2025	Fall	Clitellata			Oligochaeta	6
Spring Lake Dam	10/14/2025	Fall	Gastropoda		Physidae	Physella	1
Spring Lake Dam	10/14/2025	Fall	Gastropoda		Pleuroceridae	Elimia	3
Spring Lake Dam	10/14/2025	Fall	Gastropoda		Thiaridae	Melanoides tuberculata	4
Spring Lake Dam	10/14/2025	Fall	Insecta	Coleoptera	Elmidae	Macrelmis	2
Spring Lake Dam	10/14/2025	Fall	Insecta	Coleoptera	Elmidae	Microcylloepus pusillus	1
Spring Lake Dam	10/14/2025	Fall	Insecta	Coleoptera	Psephenidae	Psephenus texanus	1
Spring Lake Dam	10/14/2025	Fall	Insecta	Diptera	Chironomidae	Chironomidae	3
Spring Lake Dam	10/14/2025	Fall	Insecta	Diptera	Simuliidae	Simulium	32
Spring Lake Dam	10/14/2025	Fall	Insecta	Ephemeroptera	Baetidae	Baetodes	3
Spring Lake Dam	10/14/2025	Fall	Insecta	Ephemeroptera	Baetidae	Fallceon	9
Spring Lake Dam	10/14/2025	Fall	Insecta	Ephemeroptera	Leptohyphidae	Leptohyphes	27
Spring Lake Dam	10/14/2025	Fall	Insecta	Ephemeroptera	Leptohyphidae	Tricorythodes	9
Spring Lake Dam	10/14/2025	Fall	Insecta	Hemiptera	Naucoridae	Ambrysus circumcinctus	10
Spring Lake Dam	10/14/2025	Fall	Insecta	Hemiptera	Naucoridae	Ambrysus lunatus	1

Spring Lake Dam	10/14/2025	Fall	Insecta	Megaloptera	Corydalidae	Corydalus	7
Spring Lake Dam	10/14/2025	Fall	Insecta	Odonata	Calopterygidae	Hetaerina	2
Spring Lake Dam	10/14/2025	Fall	Insecta	Odonata	Coenagrionidae	Argia	6
Spring Lake Dam	10/14/2025	Fall	Insecta	Odonata	Coenagrionidae	Enallagma	3
Spring Lake Dam	10/14/2025	Fall	Insecta	Odonata	Libellulidae	Brechmorhoga	4
Spring Lake Dam	10/14/2025	Fall	Insecta	Trichoptera	Helicopsychidae	Helicopsyche	5
Spring Lake Dam	10/14/2025	Fall	Insecta	Trichoptera	Hydrobiosidae	Atopsyche	1
Spring Lake Dam	10/14/2025	Fall	Insecta	Trichoptera	Hydropsychidae	Cheumatopsyche	1
Spring Lake Dam	10/14/2025	Fall	Insecta	Trichoptera	Philopotamidae	Chimarra	24
Spring Lake Dam	10/14/2025	Fall	Malacostraca	Amphipoda	Hyaellidae	Hyaella	11
Spring Lake Dam	10/14/2025	Fall		Tricladida	Dugesiidae	Dugesia	11

APPENDIX G: DROP-NET RAW DATA

SiteCode	Reach	Site_No	Date	Dip_Net	Species	Length	Count
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	21	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	23	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	19	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	15	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	20	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	15	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	18	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	16	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	29	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	15	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	18	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	21	1
3300	City Park	Cab-2	2025-04-23	2	Etheostoma fonticola	17	1
3300	City Park	Cab-2	2025-04-23	2	Palaemonetes sp.		4
3300	City Park	Cab-2	2025-04-23	2	Ambloplites rupestris	22	1
3300	City Park	Cab-2	2025-04-23	2	Gambusia sp.	21	1
3300	City Park	Cab-2	2025-04-23	2	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	2	Gambusia sp.	14	1
3300	City Park	Cab-2	2025-04-23	2	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	2	Gambusia sp.	19	1
3300	City Park	Cab-2	2025-04-23	2	Gambusia sp.	17	1
3300	City Park	Cab-2	2025-04-23	2	Gambusia sp.	16	1
3300	City Park	Cab-2	2025-04-23	2	Procambarus sp.		1
3300	City Park	Cab-2	2025-04-23	2	Dionda nigrotaeniata	16	1
3300	City Park	Cab-2	2025-04-23	3	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	3	Gambusia sp.	25	1
3300	City Park	Cab-2	2025-04-23	3	Etheostoma fonticola	21	1
3300	City Park	Cab-2	2025-04-23	3	Etheostoma fonticola	23	1
3300	City Park	Cab-2	2025-04-23	3	Etheostoma fonticola	21	1

3300	City Park	Cab-2	2025-04-23	3	Etheostoma fonticola	18	1
3300	City Park	Cab-2	2025-04-23	3	Dionda nigrotaeniata	15	1
3300	City Park	Cab-2	2025-04-23	4	Etheostoma fonticola	24	1
3300	City Park	Cab-2	2025-04-23	4	Etheostoma fonticola	22	1
3300	City Park	Cab-2	2025-04-23	4	Etheostoma fonticola	10	1
3300	City Park	Cab-2	2025-04-23	4	Etheostoma fonticola	20	1
3300	City Park	Cab-2	2025-04-23	4	Palaemonetes sp.		1
3300	City Park	Cab-2	2025-04-23	4	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	4	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	4	Gambusia sp.	28	1
3300	City Park	Cab-2	2025-04-23	4	Gambusia sp.	12	1
3300	City Park	Cab-2	2025-04-23	4	Procambarus sp.		2
3300	City Park	Cab-2	2025-04-23	5	Dionda nigrotaeniata	20	1
3300	City Park	Cab-2	2025-04-23	5	Palaemonetes sp.		1
3300	City Park	Cab-2	2025-04-23	5	Gambusia sp.	9	1
3300	City Park	Cab-2	2025-04-23	5	Gambusia sp.	17	1
3300	City Park	Cab-2	2025-04-23	5	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	5	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	6	Procambarus sp.		2
3300	City Park	Cab-2	2025-04-23	6	Etheostoma fonticola	16	1
3300	City Park	Cab-2	2025-04-23	6	Etheostoma fonticola	36	1
3300	City Park	Cab-2	2025-04-23	6	Etheostoma fonticola	19	1
3300	City Park	Cab-2	2025-04-23	6	Etheostoma fonticola	24	1
3300	City Park	Cab-2	2025-04-23	6	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	6	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	6	Procambarus sp.		1
3300	City Park	Cab-2	2025-04-23	7	Gambusia sp.	19	1
3300	City Park	Cab-2	2025-04-23	7	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	7	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	7	Gambusia sp.	15	1

3300	City Park	Cab-2	2025-04-23	7	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	7	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	7	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	8	Etheostoma fonticola	22	1
3300	City Park	Cab-2	2025-04-23	8	Etheostoma fonticola	25	1
3300	City Park	Cab-2	2025-04-23	8	Etheostoma fonticola	22	1
3300	City Park	Cab-2	2025-04-23	9	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	9	Etheostoma fonticola	22	1
3300	City Park	Cab-2	2025-04-23	10	Procambarus sp.		1
3300	City Park	Cab-2	2025-04-23	10	Palaemonetes sp.		1
3300	City Park	Cab-2	2025-04-23	10	Etheostoma fonticola	21	1
3300	City Park	Cab-2	2025-04-23	10	Etheostoma fonticola	23	1
3300	City Park	Cab-2	2025-04-23	10	Etheostoma fonticola	18	1
3300	City Park	Cab-2	2025-04-23	10	Etheostoma fonticola	25	1
3300	City Park	Cab-2	2025-04-23	10	Etheostoma fonticola	22	1
3300	City Park	Cab-2	2025-04-23	10	Etheostoma fonticola	30	1
3300	City Park	Cab-2	2025-04-23	10	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	10	Gambusia sp.	15	1
3300	City Park	Cab-2	2025-04-23	10	Gambusia sp.	10	1
3300	City Park	Cab-2	2025-04-23	11	Procambarus sp.		1
3300	City Park	Cab-2	2025-04-23	11	Etheostoma fonticola	23	1
3300	City Park	Cab-2	2025-04-23	11	Etheostoma fonticola	20	1
3300	City Park	Cab-2	2025-04-23	12	Procambarus sp.		3
3300	City Park	Cab-2	2025-04-23	12	Etheostoma fonticola	15	1
3300	City Park	Cab-2	2025-04-23	12	Etheostoma fonticola	28	1
3300	City Park	Cab-2	2025-04-23	12	Etheostoma fonticola	11	1
3300	City Park	Cab-2	2025-04-23	13	Etheostoma fonticola	12	1
3300	City Park	Cab-2	2025-04-23	13	Etheostoma fonticola	28	1
3300	City Park	Cab-2	2025-04-23	14	Etheostoma fonticola	29	1
3300	City Park	Cab-2	2025-04-23	14	Etheostoma fonticola	19	1

3300	City Park	Cab-2	2025-04-23	14	<i>Etheostoma fonticola</i>	24	1
3300	City Park	Cab-2	2025-04-23	14	<i>Etheostoma fonticola</i>	16	1
3300	City Park	Cab-2	2025-04-23	15	<i>Etheostoma fonticola</i>	18	1
3300	City Park	Cab-2	2025-04-23	15	<i>Etheostoma fonticola</i>	18	1
3300	City Park	Cab-2	2025-04-23	16	<i>Procambarus</i> sp.		3
3300	City Park	Cab-2	2025-04-23	1	<i>Procambarus</i> sp.		2
3300	City Park	Cab-2	2025-04-23	1	<i>Gambusia</i> sp.	19	1
3300	City Park	Cab-2	2025-04-23	1	<i>Gambusia</i> sp.	16	1
3300	City Park	Cab-2	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3300	City Park	Cab-2	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3300	City Park	Cab-2	2025-04-23	1	<i>Dionda nigrotaeniata</i>	18	1
3300	City Park	Cab-2	2025-04-23	1	<i>Etheostoma fonticola</i>	20	1
3300	City Park	Cab-2	2025-04-23	1	<i>Astyanax argentatus</i>	17	1
3301	City Park	Sag-1	2025-04-23	1	<i>Procambarus</i> sp.		2
3301	City Park	Sag-1	2025-04-23	1	<i>Etheostoma fonticola</i>	14	1
3301	City Park	Sag-1	2025-04-23	1	<i>Etheostoma fonticola</i>	21	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	20	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	15	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	16	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	10	1
3301	City Park	Sag-1	2025-04-23	1	<i>Gambusia</i> sp.	18	1
3301	City Park	Sag-1	2025-04-23	2	<i>Gambusia</i> sp.	23	1
3301	City Park	Sag-1	2025-04-23	2	<i>Gambusia</i> sp.	12	1
3301	City Park	Sag-1	2025-04-23	2	<i>Gambusia</i> sp.	15	1
3301	City Park	Sag-1	2025-04-23	2	<i>Procambarus</i> sp.		1

3301	City Park	Sag-1	2025-04-23	3	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	3	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	3	Gambusia sp.	15	1
3301	City Park	Sag-1	2025-04-23	3	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	3	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	3	Procambarus sp.		2
3301	City Park	Sag-1	2025-04-23	3	Etheostoma fonticola	11	1
3301	City Park	Sag-1	2025-04-23	3	Etheostoma fonticola	15	1
3301	City Park	Sag-1	2025-04-23	4	Procambarus sp.		4
3301	City Park	Sag-1	2025-04-23	4	Etheostoma fonticola	21	1
3301	City Park	Sag-1	2025-04-23	4	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	4	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	4	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	4	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	4	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	5	Procambarus sp.		3
3301	City Park	Sag-1	2025-04-23	5	Etheostoma fonticola	35	1
3301	City Park	Sag-1	2025-04-23	5	Ameiurus natalis	16	1
3301	City Park	Sag-1	2025-04-23	5	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	6	Etheostoma fonticola	15	1
3301	City Park	Sag-1	2025-04-23	6	Etheostoma fonticola	28	1
3301	City Park	Sag-1	2025-04-23	6	Procambarus sp.		2
3301	City Park	Sag-1	2025-04-23	7	Procambarus sp.		3
3301	City Park	Sag-1	2025-04-23	7	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	7	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	7	Etheostoma fonticola	12	1
3301	City Park	Sag-1	2025-04-23	8	Procambarus sp.		1
3301	City Park	Sag-1	2025-04-23	9	Etheostoma fonticola	16	1
3301	City Park	Sag-1	2025-04-23	10	Procambarus sp.		3
3301	City Park	Sag-1	2025-04-23	11	Etheostoma fonticola	24	1

3301	City Park	Sag-1	2025-04-23	11	Etheostoma fonticola	20	1
3301	City Park	Sag-1	2025-04-23	12	Etheostoma fonticola	23	1
3301	City Park	Sag-1	2025-04-23	13	Etheostoma fonticola	28	1
3301	City Park	Sag-1	2025-04-23	13	Gambusia sp.	10	1
3301	City Park	Sag-1	2025-04-23	14	Procambarus sp.		5
3301	City Park	Sag-1	2025-04-23	15	Lepomis sp.	18	1
3302	City Park	Sag-2	2025-04-23	1	Etheostoma fonticola	21	1
3302	City Park	Sag-2	2025-04-23	2	Gambusia sp.	25	1
3302	City Park	Sag-2	2025-04-23	2	Gambusia sp.	25	1
3302	City Park	Sag-2	2025-04-23	2	Etheostoma fonticola	21	1
3302	City Park	Sag-2	2025-04-23	2	Etheostoma fonticola	20	1
3302	City Park	Sag-2	2025-04-23	3	Etheostoma fonticola	18	1
3302	City Park	Sag-2	2025-04-23	4	Gambusia sp.	10	1
3302	City Park	Sag-2	2025-04-23	4	Gambusia sp.	15	1
3302	City Park	Sag-2	2025-04-23	4	Etheostoma fonticola	20	1
3302	City Park	Sag-2	2025-04-23	5	Gambusia sp.	26	1
3302	City Park	Sag-2	2025-04-23	6	Etheostoma fonticola	28	1
3302	City Park	Sag-2	2025-04-23	6	Etheostoma fonticola	22	1
3302	City Park	Sag-2	2025-04-23	6	Etheostoma fonticola	15	1
3302	City Park	Sag-2	2025-04-23	6	Etheostoma fonticola	16	1
3302	City Park	Sag-2	2025-04-23	6	Etheostoma fonticola	16	1
3302	City Park	Sag-2	2025-04-23	6	Etheostoma fonticola	16	1
3302	City Park	Sag-2	2025-04-23	6	Gambusia sp.	15	1
3302	City Park	Sag-2	2025-04-23	7	Etheostoma fonticola	30	1
3302	City Park	Sag-2	2025-04-23	8	Etheostoma fonticola	18	1
3302	City Park	Sag-2	2025-04-23	9	Gambusia sp.	20	1
3302	City Park	Sag-2	2025-04-23	10	Etheostoma fonticola	14	1
3302	City Park	Sag-2	2025-04-23	11	Etheostoma fonticola	22	1
3302	City Park	Sag-2	2025-04-23	12	Etheostoma fonticola	19	1
3302	City Park	Sag-2	2025-04-23	13	Procambarus sp.		1

3302	City Park	Sag-2	2025-04-23	13	<i>Etheostoma fonticola</i>	20	1
3302	City Park	Sag-2	2025-04-23	14	<i>Gambusia sp.</i>	10	1
3302	City Park	Sag-2	2025-04-23	14	<i>Etheostoma fonticola</i>	18	1
3302	City Park	Sag-2	2025-04-23	15	<i>Gambusia sp.</i>	10	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	39	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	18	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	9	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	10	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	29	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	31	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	15	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	13	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	8	1
3303	I-35	Cab-1	2025-04-24	1	<i>Gambusia sp.</i>	8	1
3303	I-35	Cab-1	2025-04-24	1	<i>Ambloplites rupestris</i>	18	1
3303	I-35	Cab-1	2025-04-24	1	<i>Etheostoma fonticola</i>	21	1
3303	I-35	Cab-1	2025-04-24	1	<i>Lepomis sp.</i>	10	1
3303	I-35	Cab-1	2025-04-24	1	<i>Lepomis sp.</i>	9	1
3303	I-35	Cab-1	2025-04-24	1	<i>Lepomis sp.</i>	12	1
3303	I-35	Cab-1	2025-04-24	1	<i>Lepomis sp.</i>	9	1
3303	I-35	Cab-1	2025-04-24	1	<i>Palaemonetes sp.</i>		1
3303	I-35	Cab-1	2025-04-24	2	<i>Dionda nigrotaeniata</i>	16	1
3303	I-35	Cab-1	2025-04-24	2	<i>Etheostoma fonticola</i>	31	1
3303	I-35	Cab-1	2025-04-24	2	<i>Etheostoma fonticola</i>	25	1
3303	I-35	Cab-1	2025-04-24	2	<i>Etheostoma fonticola</i>	15	1
3303	I-35	Cab-1	2025-04-24	2	<i>Gambusia sp.</i>	8	1
3303	I-35	Cab-1	2025-04-24	3	<i>Etheostoma fonticola</i>	22	1
3303	I-35	Cab-1	2025-04-24	3	<i>Etheostoma fonticola</i>	34	1
3303	I-35	Cab-1	2025-04-24	3	<i>Etheostoma fonticola</i>	23	1
3303	I-35	Cab-1	2025-04-24	3	<i>Etheostoma fonticola</i>	25	1

3303	I-35	Cab-1	2025-04-24	3	Gambusia sp.	34	1
3303	I-35	Cab-1	2025-04-24	3	Gambusia sp.	14	1
3303	I-35	Cab-1	2025-04-24	3	Procambarus sp.		1
3303	I-35	Cab-1	2025-04-24	4	Lepomis miniatus	120	1
3303	I-35	Cab-1	2025-04-24	4	Procambarus sp.		4
3303	I-35	Cab-1	2025-04-24	4	Etheostoma fonticola	31	1
3303	I-35	Cab-1	2025-04-24	4	Etheostoma fonticola	26	1
3303	I-35	Cab-1	2025-04-24	5	Etheostoma fonticola	16	1
3303	I-35	Cab-1	2025-04-24	5	Etheostoma fonticola	24	1
3303	I-35	Cab-1	2025-04-24	5	Etheostoma fonticola	15	1
3303	I-35	Cab-1	2025-04-24	6	Etheostoma fonticola	12	1
3303	I-35	Cab-1	2025-04-24	6	Etheostoma fonticola	14	1
3303	I-35	Cab-1	2025-04-24	6	Lepomis sp.	13	1
3303	I-35	Cab-1	2025-04-24	6	Lepomis sp.	10	1
3303	I-35	Cab-1	2025-04-24	7	Etheostoma fonticola	22	1
3303	I-35	Cab-1	2025-04-24	7	Etheostoma fonticola	20	1
3303	I-35	Cab-1	2025-04-24	7	Etheostoma fonticola	25	1
3303	I-35	Cab-1	2025-04-24	8	Lepomis sp.	12	1
3303	I-35	Cab-1	2025-04-24	9	Procambarus sp.		3
3303	I-35	Cab-1	2025-04-24	9	Lepomis sp.	13	1
3303	I-35	Cab-1	2025-04-24	9	Etheostoma fonticola	14	1
3303	I-35	Cab-1	2025-04-24	10	Etheostoma fonticola	28	1
3303	I-35	Cab-1	2025-04-24	11	Etheostoma fonticola	19	1
3303	I-35	Cab-1	2025-04-24	12	Etheostoma fonticola	16	1
3303	I-35	Cab-1	2025-04-24	12	Etheostoma fonticola	12	1
3303	I-35	Cab-1	2025-04-24	13	No fish collected		
3303	I-35	Cab-1	2025-04-24	14	Etheostoma fonticola	21	1
3303	I-35	Cab-1	2025-04-24	15	No fish collected		
3304	I-35	Cab-2	2025-04-24	1	Palaemonetes sp.		1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	22	1

3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	24	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	34	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	15	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	16	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	12	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	14	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	1	Etheostoma fonticola	23	1
3304	I-35	Cab-2	2025-04-24	1	Procambarus sp.		6
3304	I-35	Cab-2	2025-04-24	2	Etheostoma fonticola	20	1
3304	I-35	Cab-2	2025-04-24	2	Gambusia sp.	15	1
3304	I-35	Cab-2	2025-04-24	2	Gambusia sp.	10	1
3304	I-35	Cab-2	2025-04-24	2	Astyanax argentatus	10	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	17	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	15	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	30	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	20	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	27	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	14	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	15	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	15	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	17	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	25	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	21	1

3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	12	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	24	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	14	1
3304	I-35	Cab-2	2025-04-24	3	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	3	Procambarus sp.		8
3304	I-35	Cab-2	2025-04-24	3	Gambusia sp.	12	1
3304	I-35	Cab-2	2025-04-24	3	Lepomis sp.	9	1
3304	I-35	Cab-2	2025-04-24	4	Procambarus sp.		4
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	26	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	32	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	31	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	15	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	28	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	19	1
3304	I-35	Cab-2	2025-04-24	4	Etheostoma fonticola	21	1
3304	I-35	Cab-2	2025-04-24	5	Etheostoma fonticola	16	1
3304	I-35	Cab-2	2025-04-24	5	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	5	Etheostoma fonticola	25	1
3304	I-35	Cab-2	2025-04-24	5	Etheostoma fonticola	23	1
3304	I-35	Cab-2	2025-04-24	5	Etheostoma fonticola	17	1
3304	I-35	Cab-2	2025-04-24	5	Etheostoma fonticola	25	1
3304	I-35	Cab-2	2025-04-24	5	Etheostoma fonticola	19	1
3304	I-35	Cab-2	2025-04-24	5	Procambarus sp.		1
3304	I-35	Cab-2	2025-04-24	5	Lepomis sp.	8	1
3304	I-35	Cab-2	2025-04-24	6	Etheostoma fonticola	19	1
3304	I-35	Cab-2	2025-04-24	6	Etheostoma fonticola	25	1
3304	I-35	Cab-2	2025-04-24	6	Etheostoma fonticola	26	1
3304	I-35	Cab-2	2025-04-24	6	Procambarus sp.		1

3304	I-35	Cab-2	2025-04-24	7	Etheostoma fonticola	20	1
3304	I-35	Cab-2	2025-04-24	7	Etheostoma fonticola	17	1
3304	I-35	Cab-2	2025-04-24	7	Etheostoma fonticola	16	1
3304	I-35	Cab-2	2025-04-24	7	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	7	Etheostoma fonticola	24	1
3304	I-35	Cab-2	2025-04-24	7	Etheostoma fonticola	16	1
3304	I-35	Cab-2	2025-04-24	7	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	8	Etheostoma fonticola	29	1
3304	I-35	Cab-2	2025-04-24	8	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	8	Etheostoma fonticola	21	1
3304	I-35	Cab-2	2025-04-24	8	Etheostoma fonticola	16	1
3304	I-35	Cab-2	2025-04-24	8	Etheostoma fonticola	25	1
3304	I-35	Cab-2	2025-04-24	8	Etheostoma fonticola	23	1
3304	I-35	Cab-2	2025-04-24	8	Etheostoma fonticola	17	1
3304	I-35	Cab-2	2025-04-24	8	Procambarus sp.		5
3304	I-35	Cab-2	2025-04-24	9	Procambarus sp.		3
3304	I-35	Cab-2	2025-04-24	9	Etheostoma fonticola	39	1
3304	I-35	Cab-2	2025-04-24	9	Etheostoma fonticola	28	1
3304	I-35	Cab-2	2025-04-24	9	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	10	No fish collected		
3304	I-35	Cab-2	2025-04-24	11	Procambarus sp.		6
3304	I-35	Cab-2	2025-04-24	11	Gambusia sp.	11	1
3304	I-35	Cab-2	2025-04-24	11	Etheostoma fonticola	25	1
3304	I-35	Cab-2	2025-04-24	11	Etheostoma fonticola	19	1
3304	I-35	Cab-2	2025-04-24	11	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	11	Etheostoma fonticola	17	1
3304	I-35	Cab-2	2025-04-24	12	Etheostoma fonticola	30	1
3304	I-35	Cab-2	2025-04-24	12	Etheostoma fonticola	18	1
3304	I-35	Cab-2	2025-04-24	12	Etheostoma fonticola	26	1
3304	I-35	Cab-2	2025-04-24	12	Etheostoma fonticola	20	1

3304	I-35	Cab-2	2025-04-24	12	Procambarus sp.		1
3304	I-35	Cab-2	2025-04-24	13	Procambarus sp.		1
3304	I-35	Cab-2	2025-04-24	13	Etheostoma fonticola	20	1
3304	I-35	Cab-2	2025-04-24	14	Procambarus sp.		2
3304	I-35	Cab-2	2025-04-24	14	Etheostoma fonticola	22	1
3304	I-35	Cab-2	2025-04-24	14	Etheostoma fonticola	16	1
3304	I-35	Cab-2	2025-04-24	15	Procambarus sp.		3
3305	I-35	Lud-1	2025-04-24	1	Procambarus sp.		4
3305	I-35	Lud-1	2025-04-24	1	Etheostoma fonticola	20	1
3305	I-35	Lud-1	2025-04-24	1	Etheostoma fonticola	16	1
3305	I-35	Lud-1	2025-04-24	1	Etheostoma fonticola	12	1
3305	I-35	Lud-1	2025-04-24	1	Etheostoma fonticola	10	1
3305	I-35	Lud-1	2025-04-24	2	Procambarus sp.		1
3305	I-35	Lud-1	2025-04-24	2	Etheostoma fonticola	18	1
3305	I-35	Lud-1	2025-04-24	3	Procambarus sp.		3
3305	I-35	Lud-1	2025-04-24	4	Procambarus sp.		2
3305	I-35	Lud-1	2025-04-24	4	Etheostoma fonticola	16	1
3305	I-35	Lud-1	2025-04-24	5	Procambarus sp.		3
3305	I-35	Lud-1	2025-04-24	5	Etheostoma fonticola	10	1
3305	I-35	Lud-1	2025-04-24	6	Procambarus sp.		3
3305	I-35	Lud-1	2025-04-24	6	Etheostoma fonticola	33	1
3305	I-35	Lud-1	2025-04-24	6	Gambusia sp.	10	1
3305	I-35	Lud-1	2025-04-24	7	Ameiurus natalis	16	1
3305	I-35	Lud-1	2025-04-24	7	Etheostoma fonticola	21	1
3305	I-35	Lud-1	2025-04-24	8	Procambarus sp.		3
3305	I-35	Lud-1	2025-04-24	9	Procambarus sp.		2
3305	I-35	Lud-1	2025-04-24	9	Lepomis cyanellus	60	1
3305	I-35	Lud-1	2025-04-24	10	No fish collected		
3305	I-35	Lud-1	2025-04-24	11	No fish collected		
3305	I-35	Lud-1	2025-04-24	12	Procambarus sp.		1

3305	I-35	Lud-1	2025-04-24	13	No fish collected		
3305	I-35	Lud-1	2025-04-24	14	No fish collected		
3305	I-35	Lud-1	2025-04-24	15	Procambarus sp.		2
3306	I-35	Lud-2	2025-04-24	1	Gambusia sp.	28	1
3306	I-35	Lud-2	2025-04-24	2	No fish collected		
3306	I-35	Lud-2	2025-04-24	3	Etheostoma fonticola	22	1
3306	I-35	Lud-2	2025-04-24	4	No fish collected		
3306	I-35	Lud-2	2025-04-24	5	Procambarus sp.		1
3306	I-35	Lud-2	2025-04-24	5	Etheostoma fonticola	33	1
3306	I-35	Lud-2	2025-04-24	6	No fish collected		
3306	I-35	Lud-2	2025-04-24	7	No fish collected		
3306	I-35	Lud-2	2025-04-24	8	Procambarus sp.		1
3306	I-35	Lud-2	2025-04-24	8	Gambusia sp.	18	1
3306	I-35	Lud-2	2025-04-24	9	Procambarus sp.		1
3306	I-35	Lud-2	2025-04-24	10	No fish collected		
3306	I-35	Lud-2	2025-04-24	11	No fish collected		
3306	I-35	Lud-2	2025-04-24	12	No fish collected		
3306	I-35	Lud-2	2025-04-24	13	No fish collected		
3306	I-35	Lud-2	2025-04-24	14	No fish collected		
3306	I-35	Lud-2	2025-04-24	15	No fish collected		
3307	I-35	Open-1	2025-04-24	1	No fish collected		
3307	I-35	Open-1	2025-04-24	2	No fish collected		
3307	I-35	Open-1	2025-04-24	3	No fish collected		
3307	I-35	Open-1	2025-04-24	4	No fish collected		
3307	I-35	Open-1	2025-04-24	5	No fish collected		
3307	I-35	Open-1	2025-04-24	6	Gambusia sp.	28	1
3307	I-35	Open-1	2025-04-24	7	No fish collected		
3307	I-35	Open-1	2025-04-24	8	No fish collected		
3307	I-35	Open-1	2025-04-24	9	No fish collected		
3307	I-35	Open-1	2025-04-24	10	No fish collected		

3307	I-35	Open-1	2025-04-24	11	No fish collected		
3307	I-35	Open-1	2025-04-24	12	No fish collected		
3307	I-35	Open-1	2025-04-24	13	No fish collected		
3307	I-35	Open-1	2025-04-24	14	No fish collected		
3307	I-35	Open-1	2025-04-24	15	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	1	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	2	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	3	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	4	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	5	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	6	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	7	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	8	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	9	No fish collected		
3287	Spring Lake Dam	Open-1	2025-04-22	10	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	1	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	2	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	3	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	4	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	5	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	6	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	7	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	8	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	9	No fish collected		
3288	Spring Lake Dam	Open-2	2025-04-22	10	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	1	Gambusia sp.	12	1
3289	Spring Lake Dam	Pota-1	2025-04-22	2	Etheostoma fonticola	16	1
3289	Spring Lake Dam	Pota-1	2025-04-22	3	Herichthys cyanoguttatus	62	1
3289	Spring Lake Dam	Pota-1	2025-04-22	4	Procambarus sp.		1
3289	Spring Lake Dam	Pota-1	2025-04-22	5	Etheostoma fonticola	16	1

3289	Spring Lake Dam	Pota-1	2025-04-22	6	Etheostoma fonticola	15	1
3289	Spring Lake Dam	Pota-1	2025-04-22	7	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	8	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	9	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	10	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	11	Procambarus sp.		1
3289	Spring Lake Dam	Pota-1	2025-04-22	12	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	13	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	14	No fish collected		
3289	Spring Lake Dam	Pota-1	2025-04-22	15	No fish collected		
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Procambarus sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	20	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	14	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	15	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	15	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	36	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	31	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	19	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	25	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	25	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	15	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	20	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	21	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	18	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	27	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	23	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	14	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	20	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	16	1
3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	13	1

3290	Spring Lake Dam	Pota-2	2025-04-22	1	Gambusia sp.	10	1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	2	Etheostoma fonticola	12	1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1

3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	3	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	4	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	4	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	4	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	4	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	4	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	4	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	5	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	5	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	5	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	6	Etheostoma fonticola	21	1
3290	Spring Lake Dam	Pota-2	2025-04-22	7	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	7	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	7	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	7	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	7	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	7	Etheostoma fonticola	20	1
3290	Spring Lake Dam	Pota-2	2025-04-22	8	No fish collected		

3290	Spring Lake Dam	Pota-2	2025-04-22	9	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	10	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	10	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	10	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	10	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	10	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	11	No fish collected		
3290	Spring Lake Dam	Pota-2	2025-04-22	12	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	13	No fish collected		
3290	Spring Lake Dam	Pota-2	2025-04-22	14	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	14	Gambusia sp.		1
3290	Spring Lake Dam	Pota-2	2025-04-22	15	No fish collected		
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Ameiurus natalis	95	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Poecilia latipinna	30	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Poecilia latipinna	36	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Herichthys cyanoguttatus	52	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Procambarus sp.		3
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Gambusia sp.	15	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Gambusia sp.	12	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Gambusia sp.	21	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Etheostoma fonticola	24	1
3291	Spring Lake Dam	Sag-1	2025-04-22	1	Etheostoma fonticola	15	1
3291	Spring Lake Dam	Sag-1	2025-04-22	2	Procambarus sp.		8
3291	Spring Lake Dam	Sag-1	2025-04-22	2	Etheostoma fonticola	35	1
3291	Spring Lake Dam	Sag-1	2025-04-22	2	Etheostoma fonticola	36	1
3291	Spring Lake Dam	Sag-1	2025-04-22	2	Etheostoma fonticola	15	1
3291	Spring Lake Dam	Sag-1	2025-04-22	2	Gambusia sp.	26	1
3291	Spring Lake Dam	Sag-1	2025-04-22	2	Gambusia sp.	24	1
3291	Spring Lake Dam	Sag-1	2025-04-22	3	Procambarus sp.		4
3291	Spring Lake Dam	Sag-1	2025-04-22	3	Etheostoma fonticola	23	1

3291	Spring Lake Dam	Sag-1	2025-04-22	4	Procambarus sp.		7
3291	Spring Lake Dam	Sag-1	2025-04-22	4	Etheostoma fonticola	30	1
3291	Spring Lake Dam	Sag-1	2025-04-22	4	Etheostoma fonticola	19	1
3291	Spring Lake Dam	Sag-1	2025-04-22	4	Etheostoma fonticola	39	1
3291	Spring Lake Dam	Sag-1	2025-04-22	5	Procambarus sp.		5
3291	Spring Lake Dam	Sag-1	2025-04-22	5	Gambusia sp.	25	1
3291	Spring Lake Dam	Sag-1	2025-04-22	6	Procambarus sp.		4
3291	Spring Lake Dam	Sag-1	2025-04-22	7	Etheostoma fonticola	21	1
3291	Spring Lake Dam	Sag-1	2025-04-22	8	Procambarus sp.		4
3291	Spring Lake Dam	Sag-1	2025-04-22	8	Herichthys cyanoguttatus	50	1
3291	Spring Lake Dam	Sag-1	2025-04-22	9	Etheostoma fonticola	17	1
3291	Spring Lake Dam	Sag-1	2025-04-22	10	Procambarus sp.		4
3291	Spring Lake Dam	Sag-1	2025-04-22	11	Procambarus sp.		1
3291	Spring Lake Dam	Sag-1	2025-04-22	11	Herichthys cyanoguttatus	45	1
3291	Spring Lake Dam	Sag-1	2025-04-22	12	Etheostoma fonticola	34	1
3291	Spring Lake Dam	Sag-1	2025-04-22	13	Procambarus sp.		1
3291	Spring Lake Dam	Sag-1	2025-04-22	13	Etheostoma fonticola	38	1
3291	Spring Lake Dam	Sag-1	2025-04-22	14	Procambarus sp.		1
3291	Spring Lake Dam	Sag-1	2025-04-22	15	Procambarus sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Herichthys cyanoguttatus	55	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Herichthys cyanoguttatus	83	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Herichthys cyanoguttatus	50	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	32	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	40	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	29	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	10	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	15	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	10	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	10	1
3292	Spring Lake Dam	Sag-2	2025-04-22	1	Gambusia sp.	30	1

3292	Spring Lake Dam	Sag-2	2025-04-22	3	Herichthys cyanoguttatus	64	1
3292	Spring Lake Dam	Sag-2	2025-04-22	3	Gambusia sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	3	Gambusia sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	3	Gambusia sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	3	Gambusia sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	3	Etheostoma fonticola	35	1
3292	Spring Lake Dam	Sag-2	2025-04-22	3	Procambarus sp.		2
3292	Spring Lake Dam	Sag-2	2025-04-22	4	Procambarus sp.		7
3292	Spring Lake Dam	Sag-2	2025-04-22	4	Gambusia sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	5	Procambarus sp.		2
3292	Spring Lake Dam	Sag-2	2025-04-22	5	Gambusia sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	5	Gambusia sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	6	Procambarus sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	7	Procambarus sp.		2
3292	Spring Lake Dam	Sag-2	2025-04-22	8	Procambarus sp.		3
3292	Spring Lake Dam	Sag-2	2025-04-22	9	Procambarus sp.		2
3292	Spring Lake Dam	Sag-2	2025-04-22	10	Procambarus sp.		2
3292	Spring Lake Dam	Sag-2	2025-04-22	11	Procambarus sp.		6
3292	Spring Lake Dam	Sag-2	2025-04-22	11	Lepomis miniatus	58	1
3292	Spring Lake Dam	Sag-2	2025-04-22	12	Procambarus sp.		2
3292	Spring Lake Dam	Sag-2	2025-04-22	12	Etheostoma fonticola	34	1
3292	Spring Lake Dam	Sag-2	2025-04-22	13	Lepomis miniatus	48	1
3292	Spring Lake Dam	Sag-2	2025-04-22	13	Procambarus sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	14	Procambarus sp.		1
3292	Spring Lake Dam	Sag-2	2025-04-22	15	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	1	Gambusia sp.	28	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	1	Gambusia sp.	15	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	2	Gambusia sp.	24	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	2	Etheostoma fonticola	16	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	3	No fish collected		

3293	Spring Lake Dam	Hydro-1	2025-04-22	4	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	5	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	6	Gambusia sp.	30	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	7	Etheostoma fonticola	20	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	8	Gambusia sp.	31	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	9	Etheostoma fonticola	29	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	9	Gambusia sp.	20	1
3293	Spring Lake Dam	Hydro-1	2025-04-22	10	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	11	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	12	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	13	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	14	No fish collected		
3293	Spring Lake Dam	Hydro-1	2025-04-22	15	No fish collected		
3294	Spring Lake Dam	Hydro-2	2025-04-22	1	Procambarus sp.		1
3294	Spring Lake Dam	Hydro-2	2025-04-22	2	Procambarus sp.		1
3294	Spring Lake Dam	Hydro-2	2025-04-22	3	Gambusia sp.	18	1
3294	Spring Lake Dam	Hydro-2	2025-04-22	3	Etheostoma fonticola	25	1
3294	Spring Lake Dam	Hydro-2	2025-04-22	3	Etheostoma fonticola	23	1
3294	Spring Lake Dam	Hydro-2	2025-04-22	3	Procambarus sp.		1
3294	Spring Lake Dam	Hydro-2	2025-04-22	4	No fish collected		
3294	Spring Lake Dam	Hydro-2	2025-04-22	5	Etheostoma fonticola	24	1
3294	Spring Lake Dam	Hydro-2	2025-04-22	5	Procambarus sp.		1
3294	Spring Lake Dam	Hydro-2	2025-04-22	6	Etheostoma fonticola	39	1
3294	Spring Lake Dam	Hydro-2	2025-04-22	7	No fish collected		
3294	Spring Lake Dam	Hydro-2	2025-04-22	8	Etheostoma fonticola	40	1
3294	Spring Lake Dam	Hydro-2	2025-04-22	9	No fish collected		
3294	Spring Lake Dam	Hydro-2	2025-04-22	10	No fish collected		
3294	Spring Lake Dam	Hydro-2	2025-04-22	11	Etheostoma fonticola	28	1
3294	Spring Lake Dam	Hydro-2	2025-04-22	12	No fish collected		
3294	Spring Lake Dam	Hydro-2	2025-04-22	13	No fish collected		

3294	Spring Lake Dam	Hydro-2	2025-04-22	14	No fish collected		
3294	Spring Lake Dam	Hydro-2	2025-04-22	15	No fish collected		
3295	City Park	Open-1	2025-04-23	1	No fish collected		
3295	City Park	Open-1	2025-04-23	2	No fish collected		
3295	City Park	Open-1	2025-04-23	3	No fish collected		
3295	City Park	Open-1	2025-04-23	4	No fish collected		
3295	City Park	Open-1	2025-04-23	5	No fish collected		
3295	City Park	Open-1	2025-04-23	6	No fish collected		
3295	City Park	Open-1	2025-04-23	7	No fish collected		
3295	City Park	Open-1	2025-04-23	8	No fish collected		
3295	City Park	Open-1	2025-04-23	9	No fish collected		
3295	City Park	Open-1	2025-04-23	10	No fish collected		
3296	City Park	Open-2	2025-04-23	1	No fish collected		
3296	City Park	Open-2	2025-04-23	2	No fish collected		
3296	City Park	Open-2	2025-04-23	3	No fish collected		
3296	City Park	Open-2	2025-04-23	4	No fish collected		
3296	City Park	Open-2	2025-04-23	5	No fish collected		
3296	City Park	Open-2	2025-04-23	6	No fish collected		
3296	City Park	Open-2	2025-04-23	7	No fish collected		
3296	City Park	Open-2	2025-04-23	8	No fish collected		
3296	City Park	Open-2	2025-04-23	9	No fish collected		
3296	City Park	Open-2	2025-04-23	10	No fish collected		
3296	City Park	Open-2	2025-04-23				
3297	City Park	Bryo-1	2025-04-23	1	Procambarus sp.		33
3297	City Park	Bryo-1	2025-04-23	1	Etheostoma fonticola	28	1
3297	City Park	Bryo-1	2025-04-23	1	Etheostoma fonticola	23	1
3297	City Park	Bryo-1	2025-04-23	1	Etheostoma fonticola	20	1
3297	City Park	Bryo-1	2025-04-23	1	Etheostoma fonticola	28	1
3297	City Park	Bryo-1	2025-04-23	1	Gambusia sp.	22	1
3297	City Park	Bryo-1	2025-04-23	1	Gambusia sp.	12	1

3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	22	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	26	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	36	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	34	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	21	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	20	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	17	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	15	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	18	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	20	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	34	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	29	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	26	1
3297	City Park	Bryo-1	2025-04-23	2	Etheostoma fonticola	15	1
3297	City Park	Bryo-1	2025-04-23	2	Procambarus sp.		22
3297	City Park	Bryo-1	2025-04-23	2	Gambusia sp.	8	1
3297	City Park	Bryo-1	2025-04-23	3	Procambarus sp.		15
3297	City Park	Bryo-1	2025-04-23	3	Etheostoma fonticola	25	1
3297	City Park	Bryo-1	2025-04-23	3	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	3	Etheostoma fonticola	18	1
3297	City Park	Bryo-1	2025-04-23	3	Etheostoma fonticola	33	1
3297	City Park	Bryo-1	2025-04-23	3	Etheostoma fonticola	14	1
3297	City Park	Bryo-1	2025-04-23	3	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	3	Etheostoma fonticola	15	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	15	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	31	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	13	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	20	1

3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	31	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	14	1
3297	City Park	Bryo-1	2025-04-23	4	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	4	Gambusia sp.	17	1
3297	City Park	Bryo-1	2025-04-23	4	Procambarus sp.		13
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	22	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	23	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	27	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	35	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	18	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	14	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	18	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	12	1
3297	City Park	Bryo-1	2025-04-23	5	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	5	Gambusia sp.	9	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	15	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	13	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	25	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	13	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	37	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	14	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	23	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	31	1
3297	City Park	Bryo-1	2025-04-23	6	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	6	Procambarus sp.		12
3297	City Park	Bryo-1	2025-04-23	6	Gambusia sp.	10	1
3297	City Park	Bryo-1	2025-04-23	7	Procambarus sp.		2
3297	City Park	Bryo-1	2025-04-23	7	Etheostoma fonticola	30	1
3297	City Park	Bryo-1	2025-04-23	7	Etheostoma fonticola	20	1

3297	City Park	Bryo-1	2025-04-23	7	Etheostoma fonticola	20	1
3297	City Park	Bryo-1	2025-04-23	7	Etheostoma fonticola	12	1
3297	City Park	Bryo-1	2025-04-23	8	Etheostoma fonticola	15	1
3297	City Park	Bryo-1	2025-04-23	8	Etheostoma fonticola	17	1
3297	City Park	Bryo-1	2025-04-23	8	Etheostoma fonticola	28	1
3297	City Park	Bryo-1	2025-04-23	8	Etheostoma fonticola	18	1
3297	City Park	Bryo-1	2025-04-23	8	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	8	Procambarus sp.		7
3297	City Park	Bryo-1	2025-04-23	9	Etheostoma fonticola	29	1
3297	City Park	Bryo-1	2025-04-23	9	Etheostoma fonticola	37	1
3297	City Park	Bryo-1	2025-04-23	9	Etheostoma fonticola	26	1
3297	City Park	Bryo-1	2025-04-23	9	Etheostoma fonticola	22	1
3297	City Park	Bryo-1	2025-04-23	9	Procambarus sp.		3
3297	City Park	Bryo-1	2025-04-23	10	Procambarus sp.		5
3297	City Park	Bryo-1	2025-04-23	10	Etheostoma fonticola	24	1
3297	City Park	Bryo-1	2025-04-23	11	Etheostoma fonticola	16	1
3297	City Park	Bryo-1	2025-04-23	12	Procambarus sp.		8
3297	City Park	Bryo-1	2025-04-23	13	No fish collected		
3297	City Park	Bryo-1	2025-04-23	14	Procambarus sp.		2
3297	City Park	Bryo-1	2025-04-23	15	No fish collected		
3297	City Park	Bryo-1	2025-04-23	12	Etheostoma fonticola	25	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	10	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	3	Procambarus sp.		17
3298	City Park	Bryo-2	2025-04-23	4	Procambarus sp.		8
3298	City Park	Bryo-2	2025-04-23	4	Etheostoma fonticola	28	1
3298	City Park	Bryo-2	2025-04-23	4	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	4	Etheostoma fonticola	19	1
3298	City Park	Bryo-2	2025-04-23	4	Etheostoma fonticola	14	1

3298	City Park	Bryo-2	2025-04-23	4	Etheostoma fonticola	11	1
3298	City Park	Bryo-2	2025-04-23	4	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	4	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	4	Dionda nigrotaeniata	17	1
3298	City Park	Bryo-2	2025-04-23	5	Procambarus sp.		3
3298	City Park	Bryo-2	2025-04-23	5	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	5	Etheostoma fonticola	19	1
3298	City Park	Bryo-2	2025-04-23	5	Etheostoma fonticola	23	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	32	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	22	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	28	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	22	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	30	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	21	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	23	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	12	1
3298	City Park	Bryo-2	2025-04-23	6	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	6	Procambarus sp.		23
3298	City Park	Bryo-2	2025-04-23	6	Dionda nigrotaeniata	17	1
3298	City Park	Bryo-2	2025-04-23	7	Procambarus sp.		6
3298	City Park	Bryo-2	2025-04-23	7	Etheostoma fonticola	22	1
3298	City Park	Bryo-2	2025-04-23	7	Etheostoma fonticola	34	1
3298	City Park	Bryo-2	2025-04-23	7	Etheostoma fonticola	24	1
3298	City Park	Bryo-2	2025-04-23	8	Procambarus sp.		2
3298	City Park	Bryo-2	2025-04-23	8	Etheostoma fonticola	19	1
3298	City Park	Bryo-2	2025-04-23	9	Procambarus sp.		2
3298	City Park	Bryo-2	2025-04-23	9	Etheostoma fonticola	26	1
3298	City Park	Bryo-2	2025-04-23	9	Etheostoma fonticola	27	1

3298	City Park	Bryo-2	2025-04-23	9	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	9	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	10	Procambarus sp.		4
3298	City Park	Bryo-2	2025-04-23	10	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	10	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	10	Etheostoma fonticola	32	1
3298	City Park	Bryo-2	2025-04-23	10	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	10	Gambusia sp.	20	1
3298	City Park	Bryo-2	2025-04-23	10	Procambarus sp.		1
3298	City Park	Bryo-2	2025-04-23	11	Etheostoma fonticola	20	1
3298	City Park	Bryo-2	2025-04-23	11	Etheostoma fonticola	30	1
3298	City Park	Bryo-2	2025-04-23	11	Etheostoma fonticola	25	1
3298	City Park	Bryo-2	2025-04-23	11	Etheostoma fonticola	31	1
3298	City Park	Bryo-2	2025-04-23	11	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	11	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	12	Etheostoma fonticola	19	1
3298	City Park	Bryo-2	2025-04-23	13	Etheostoma fonticola	30	1
3298	City Park	Bryo-2	2025-04-23	13	Etheostoma fonticola	26	1
3298	City Park	Bryo-2	2025-04-23	13	Etheostoma fonticola	28	1
3298	City Park	Bryo-2	2025-04-23	13	Etheostoma fonticola	29	1
3298	City Park	Bryo-2	2025-04-23	13	Procambarus sp.		3
3298	City Park	Bryo-2	2025-04-23	14	Procambarus sp.		3
3298	City Park	Bryo-2	2025-04-23	14	Etheostoma fonticola	19	1
3298	City Park	Bryo-2	2025-04-23	15	Etheostoma fonticola	32	1
3298	City Park	Bryo-2	2025-04-23	15	Etheostoma fonticola	20	1
3298	City Park	Bryo-2	2025-04-23	15	Procambarus sp.		1
3298	City Park	Bryo-2	2025-04-23	16	Procambarus sp.		1
3298	City Park	Bryo-2	2025-04-23	16	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	16	Etheostoma fonticola	33	1
3298	City Park	Bryo-2	2025-04-23	17	Etheostoma fonticola	31	1

3298	City Park	Bryo-2	2025-04-23	17	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	17	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	17	Procambarus sp.		1
3298	City Park	Bryo-2	2025-04-23	18	Gambusia sp.	16	1
3298	City Park	Bryo-2	2025-04-23	18	Procambarus sp.		1
3298	City Park	Bryo-2	2025-04-23	18	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	19	Etheostoma fonticola	24	1
3298	City Park	Bryo-2	2025-04-23	19	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	19	Procambarus sp.		
3298	City Park	Bryo-2	2025-04-23	20	No fish collected		
3298	City Park	Bryo-2	2025-04-23	1	Etheostoma fonticola	27	1
3298	City Park	Bryo-2	2025-04-23	1	Etheostoma fonticola	25	1
3298	City Park	Bryo-2	2025-04-23	1	Etheostoma fonticola	34	1
3298	City Park	Bryo-2	2025-04-23	1	Etheostoma fonticola	22	1
3298	City Park	Bryo-2	2025-04-23	1	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	1	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	1	Etheostoma fonticola	14	1
3298	City Park	Bryo-2	2025-04-23	1	Procambarus sp.		12
3298	City Park	Bryo-2	2025-04-23	1	Gambusia sp.	10	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	22	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	20	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	35	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	25	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	29	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	15	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	20	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	18	1

3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	18	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	13	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	2	Etheostoma fonticola	16	1
3298	City Park	Bryo-2	2025-04-23	2	Procambarus sp.		36
3298	City Park	Bryo-2	2025-04-23	2	Gambusia sp.	10	1
3298	City Park	Bryo-2	2025-04-23	2	Gambusia sp.	12	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	17	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	28	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	20	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	25	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	12	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	17	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	14	1
3298	City Park	Bryo-2	2025-04-23	3	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	25	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	32	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	31	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	28	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	18	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	27	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	18	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	18	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	12	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	21	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	35	1

3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	11	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	17	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	22	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	28	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	17	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	24	1
3299	City Park	Cab-1	2025-04-23	1	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	1	Palaemonetes sp.		2
3299	City Park	Cab-1	2025-04-23	1	Procambarus sp.		10
3299	City Park	Cab-1	2025-04-23	1	Ambloplites rupestris	20	1
3299	City Park	Cab-1	2025-04-23	1	Gambusia sp.	12	1
3299	City Park	Cab-1	2025-04-23	1	Gambusia sp.	15	1
3299	City Park	Cab-1	2025-04-23	1	Gambusia sp.	15	1
3299	City Park	Cab-1	2025-04-23	1	Gambusia sp.	9	1
3299	City Park	Cab-1	2025-04-23	1	Gambusia sp.	12	1
3299	City Park	Cab-1	2025-04-23	1	Gambusia sp.	14	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	32	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	28	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	14	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	18	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	19	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	19	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	29	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	11	1

3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	10	1
3299	City Park	Cab-1	2025-04-23	2	Etheostoma fonticola	10	1
3299	City Park	Cab-1	2025-04-23	2	Gambusia sp.	18	1
3299	City Park	Cab-1	2025-04-23	2	Gambusia sp.	21	1
3299	City Park	Cab-1	2025-04-23	2	Gambusia sp.	10	1
3299	City Park	Cab-1	2025-04-23	2	Procambarus sp.		3
3299	City Park	Cab-1	2025-04-23	2	Lepomis miniatus	23	1
3299	City Park	Cab-1	2025-04-23	2	Dionda nigrotaeniata	18	1
3299	City Park	Cab-1	2025-04-23	3	Etheostoma fonticola	21	1
3299	City Park	Cab-1	2025-04-23	3	Etheostoma fonticola	34	1
3299	City Park	Cab-1	2025-04-23	3	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	3	Etheostoma fonticola	11	1
3299	City Park	Cab-1	2025-04-23	3	Etheostoma fonticola	14	1
3299	City Park	Cab-1	2025-04-23	3	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	3	Gambusia sp.	13	1
3299	City Park	Cab-1	2025-04-23	3	Gambusia sp.	13	1
3299	City Park	Cab-1	2025-04-23	3	Gambusia sp.	15	1
3299	City Park	Cab-1	2025-04-23	3	Procambarus sp.		3
3299	City Park	Cab-1	2025-04-23	3	Dionda nigrotaeniata	14	1
3299	City Park	Cab-1	2025-04-23	3	Dionda nigrotaeniata	11	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	23	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	30	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	22	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	22	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	21	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	12	1
3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	16	1

3299	City Park	Cab-1	2025-04-23	4	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	4	Procambarus sp.		12
3299	City Park	Cab-1	2025-04-23	4	Palaemonetes sp.		1
3299	City Park	Cab-1	2025-04-23	5	Etheostoma fonticola	24	1
3299	City Park	Cab-1	2025-04-23	5	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	5	Etheostoma fonticola	24	1
3299	City Park	Cab-1	2025-04-23	5	Etheostoma fonticola	25	1
3299	City Park	Cab-1	2025-04-23	5	Etheostoma fonticola	19	1
3299	City Park	Cab-1	2025-04-23	5	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	5	Gambusia sp.	18	1
3299	City Park	Cab-1	2025-04-23	5	Gambusia sp.	12	1
3299	City Park	Cab-1	2025-04-23	6	Etheostoma fonticola	30	1
3299	City Park	Cab-1	2025-04-23	6	Etheostoma fonticola	24	1
3299	City Park	Cab-1	2025-04-23	6	Etheostoma fonticola	34	1
3299	City Park	Cab-1	2025-04-23	6	Etheostoma fonticola	19	1
3299	City Park	Cab-1	2025-04-23	6	Procambarus sp.		5
3299	City Park	Cab-1	2025-04-23	6	Gambusia sp.	15	1
3299	City Park	Cab-1	2025-04-23	7	Procambarus sp.		3
3299	City Park	Cab-1	2025-04-23	7	Etheostoma fonticola	23	1
3299	City Park	Cab-1	2025-04-23	7	Etheostoma fonticola	24	1
3299	City Park	Cab-1	2025-04-23	7	Etheostoma fonticola	19	1
3299	City Park	Cab-1	2025-04-23	7	Etheostoma fonticola	18	1
3299	City Park	Cab-1	2025-04-23	7	Etheostoma fonticola	27	1
3299	City Park	Cab-1	2025-04-23	7	Lepomis sp.	17	1
3299	City Park	Cab-1	2025-04-23	8	Palaemonetes sp.		1
3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	30	1
3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	19	1
3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	24	1
3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	27	1
3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	14	1

3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	18	1
3299	City Park	Cab-1	2025-04-23	8	Etheostoma fonticola	21	1
3299	City Park	Cab-1	2025-04-23	8	Procambarus sp.		5
3299	City Park	Cab-1	2025-04-23	9	Etheostoma fonticola	26	1
3299	City Park	Cab-1	2025-04-23	9	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	9	Etheostoma fonticola	21	1
3299	City Park	Cab-1	2025-04-23	9	Etheostoma fonticola	21	1
3299	City Park	Cab-1	2025-04-23	9	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	9	Procambarus sp.		2
3299	City Park	Cab-1	2025-04-23	10	Procambarus sp.		3
3299	City Park	Cab-1	2025-04-23	10	Etheostoma fonticola	32	1
3299	City Park	Cab-1	2025-04-23	10	Etheostoma fonticola	22	1
3299	City Park	Cab-1	2025-04-23	10	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	11	Etheostoma fonticola	17	1
3299	City Park	Cab-1	2025-04-23	11	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	11	Etheostoma fonticola	25	1
3299	City Park	Cab-1	2025-04-23	11	Etheostoma fonticola	25	1
3299	City Park	Cab-1	2025-04-23	11	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	11	Procambarus sp.		4
3299	City Park	Cab-1	2025-04-23	12	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	12	Etheostoma fonticola	20	1
3299	City Park	Cab-1	2025-04-23	12	Etheostoma fonticola	18	1
3299	City Park	Cab-1	2025-04-23	12	Etheostoma fonticola	25	1
3299	City Park	Cab-1	2025-04-23	12	Ameiurus natalis	18	1
3299	City Park	Cab-1	2025-04-23	12	Procambarus sp.		2
3299	City Park	Cab-1	2025-04-23	13	Procambarus sp.		1
3299	City Park	Cab-1	2025-04-23	13	Etheostoma fonticola	23	1
3299	City Park	Cab-1	2025-04-23	14	Procambarus sp.		3
3299	City Park	Cab-1	2025-04-23	15	Procambarus sp.		6

3299	City Park	Cab-1	2025-04-23	15	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	16	Procambarus sp.		3
3299	City Park	Cab-1	2025-04-23	17	Etheostoma fonticola	15	1
3299	City Park	Cab-1	2025-04-23	18	Procambarus sp.		1
3299	City Park	Cab-1	2025-04-23	18	Etheostoma fonticola	14	1
3299	City Park	Cab-1	2025-04-23	19	Etheostoma fonticola	25	1
3299	City Park	Cab-1	2025-04-23	20	Etheostoma fonticola	16	1
3299	City Park	Cab-1	2025-04-23	20	Etheostoma fonticola	24	1
3299	City Park	Cab-1	2025-04-23	20	Etheostoma fonticola	21	1
3299	City Park	Cab-1	2025-04-23	21	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	1	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	2	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	3	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	4	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	5	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	6	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	7	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	8	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	9	No fish collected		
3347	Spring Lake Dam	Open-1	2025-10-21	10	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	1	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	2	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	3	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	4	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	5	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	6	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	7	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	8	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	9	No fish collected		
3348	Spring Lake Dam	Open-2	2025-10-21	10	No fish collected		

3349	Spring Lake Dam	Pota-1	2025-10-21	3	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	3	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	3	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	3	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	5	Procambarus sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	5	Etheostoma fonticola	25	1
3349	Spring Lake Dam	Pota-1	2025-10-21	5	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	5	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	6	No fish collected		
3349	Spring Lake Dam	Pota-1	2025-10-21	7	Etheostoma fonticola	33	1
3349	Spring Lake Dam	Pota-1	2025-10-21	8	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	8	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	8	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	9	Etheostoma fonticola	35	1
3349	Spring Lake Dam	Pota-1	2025-10-21	10	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	10	Gambusia sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	11	Procambarus sp.		1
3349	Spring Lake Dam	Pota-1	2025-10-21	11	Etheostoma fonticola	23	1
3349	Spring Lake Dam	Pota-1	2025-10-21	11	Poecilia latipinna	30	1
3349	Spring Lake Dam	Pota-1	2025-10-21	12	No fish collected		
3349	Spring Lake Dam	Pota-1	2025-10-21	13	No fish collected		
3349	Spring Lake Dam	Pota-1	2025-10-21	14	No fish collected		
3349	Spring Lake Dam	Pota-1	2025-10-21	15	Etheostoma fonticola	32	1
3349	Spring Lake Dam	Pota-1	2025-10-21	16	No fish collected		
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	30	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	26	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	15	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	17	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	28	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	22	1

3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	21	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	14	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	17	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	15	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	25	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	13	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	14	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	12	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	21	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	18	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	18	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	17	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Gambusia sp.	25	1
3349	Spring Lake Dam	Pota-1	2025-10-21	1	Etheostoma fonticola	31	1
3349	Spring Lake Dam	Pota-1	2025-10-21	4	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	15	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	22	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	19	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	15	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	19	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	12	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	14	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	18	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	10	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	18	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	14	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	17	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	10	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	14	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	10	1

3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	10	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	10	1
3350	Spring Lake Dam	Pota-2	2025-10-21	1	Gambusia sp.	16	1
3350	Spring Lake Dam	Pota-2	2025-10-21	2	Dionda nigrotaeniata	50	1
3350	Spring Lake Dam	Pota-2	2025-10-21	2	Gambusia sp.	18	
3350	Spring Lake Dam	Pota-2	2025-10-21	2	Gambusia sp.	22	
3350	Spring Lake Dam	Pota-2	2025-10-21	2	Gambusia sp.	22	
3350	Spring Lake Dam	Pota-2	2025-10-21	2	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	2	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	2	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	3	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	4	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	4	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	4	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	4	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	4	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	4	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Lepomis miniatus	102	1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Lepomis miniatus	105	1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Etheostoma fonticola	24	1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Etheostoma fonticola	15	1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	5	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	6	Dionda nigrotaeniata	35	1
3350	Spring Lake Dam	Pota-2	2025-10-21	6	Dionda nigrotaeniata	37	1
3350	Spring Lake Dam	Pota-2	2025-10-21	6	Gambusia sp.		1

3350	Spring Lake Dam	Pota-2	2025-10-21	7	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	7	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	7	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	7	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	8	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	9	No fish collected		
3350	Spring Lake Dam	Pota-2	2025-10-21	10	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	11	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	11	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	12	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	12	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	13	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	13	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	14	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	14	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	14	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	14	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	15	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	14	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	14	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	15	Gambusia sp.		1
3350	Spring Lake Dam	Pota-2	2025-10-21	15	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	28	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	25	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	25	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	40	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	32	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	18	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	27	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	18	

3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	20	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	30	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	25	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	15	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	25	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	23	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	26	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	22	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	22	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	20	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	26	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	24	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	15	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	18	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.	15	
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Etheostoma fonticola	33	1
3351	Spring Lake Dam	Sag-1	2025-10-21	1	Etheostoma fonticola	36	1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1

3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Etheostoma fonticola	18	1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Etheostoma fonticola	26	1
3351	Spring Lake Dam	Sag-1	2025-10-21	2	Procambarus sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Procambarus sp.		2
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Etheostoma fonticola	39	1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Etheostoma fonticola	31	1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1

3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	3	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Procambarus sp.		2
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Etheostoma fonticola	32	1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	4	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	5	Procambarus sp.		3
3351	Spring Lake Dam	Sag-1	2025-10-21	5	Etheostoma fonticola	38	1
3351	Spring Lake Dam	Sag-1	2025-10-21	5	Etheostoma fonticola	32	1
3351	Spring Lake Dam	Sag-1	2025-10-21	5	Etheostoma fonticola	28	1
3351	Spring Lake Dam	Sag-1	2025-10-21	5	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	5	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	5	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	6	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	6	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	7	No fish collected		
3351	Spring Lake Dam	Sag-1	2025-10-21	8	Gambusia sp.		1

3351	Spring Lake Dam	Sag-1	2025-10-21	8	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	8	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	8	Procambarus sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	9	Etheostoma fonticola	32	1
3351	Spring Lake Dam	Sag-1	2025-10-21	9	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	10	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	11	Etheostoma fonticola	38	1
3351	Spring Lake Dam	Sag-1	2025-10-21	11	Etheostoma fonticola	16	1
3351	Spring Lake Dam	Sag-1	2025-10-21	12	Procambarus sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	13	Procambarus sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	14	Gambusia sp.		1
3351	Spring Lake Dam	Sag-1	2025-10-21	14	Etheostoma fonticola	35	1
3351	Spring Lake Dam	Sag-1	2025-10-21	15	No fish collected		
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	42	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	44	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	45	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	40	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	39	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	35	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	25	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	31	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	36	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	27	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	15	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	22	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	10	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	24	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	31	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	10	1

3352	Spring Lake Dam	Sag-2	2025-10-21	1	Gambusia sp.	10	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Palaemonetes sp.		3
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Procambarus sp.		6
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Etheostoma fonticola	31	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Etheostoma fonticola	24	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Etheostoma fonticola	31	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Etheostoma fonticola	31	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Etheostoma fonticola	33	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Etheostoma fonticola	37	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Etheostoma fonticola	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Lepomis miniatus	58	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Poecilia latipinna	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Poecilia latipinna	31	1
3352	Spring Lake Dam	Sag-2	2025-10-21	1	Poecilia latipinna	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Gambusia sp.	28	1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Gambusia sp.	36	1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Poecilia latipinna	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Procambarus sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Etheostoma fonticola	35	1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Etheostoma fonticola	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	2	Etheostoma fonticola	29	1
3352	Spring Lake Dam	Sag-2	2025-10-21	3	Etheostoma fonticola	25	1
3352	Spring Lake Dam	Sag-2	2025-10-21	3	Etheostoma fonticola	34	1
3352	Spring Lake Dam	Sag-2	2025-10-21	3	Etheostoma fonticola	25	1
3352	Spring Lake Dam	Sag-2	2025-10-21	3	Procambarus sp.		1

3352	Spring Lake Dam	Sag-2	2025-10-21	4	Etheostoma fonticola	32	1
3352	Spring Lake Dam	Sag-2	2025-10-21	4	Procambarus sp.		4
3352	Spring Lake Dam	Sag-2	2025-10-21	4	Poecilia latipinna	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	4	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	5	Poecilia latipinna	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	5	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	5	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	5	Herichthys cyanoguttatus	26	1
3352	Spring Lake Dam	Sag-2	2025-10-21	6	Gambusia sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	6	Procambarus sp.		4
3352	Spring Lake Dam	Sag-2	2025-10-21	6	Etheostoma fonticola	34	1
3352	Spring Lake Dam	Sag-2	2025-10-21	6	Etheostoma fonticola	24	1
3352	Spring Lake Dam	Sag-2	2025-10-21	6	Etheostoma fonticola	19	1
3352	Spring Lake Dam	Sag-2	2025-10-21	7	Procambarus sp.		2
3352	Spring Lake Dam	Sag-2	2025-10-21	7	Etheostoma fonticola	23	1
3352	Spring Lake Dam	Sag-2	2025-10-21	7	Etheostoma fonticola	27	1
3352	Spring Lake Dam	Sag-2	2025-10-21	8	Procambarus sp.		3
3352	Spring Lake Dam	Sag-2	2025-10-21	9	Procambarus sp.		2
3352	Spring Lake Dam	Sag-2	2025-10-21	10	Procambarus sp.		2
3352	Spring Lake Dam	Sag-2	2025-10-21	11	Procambarus sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	11	Etheostoma fonticola	26	1
3352	Spring Lake Dam	Sag-2	2025-10-21	11	Etheostoma fonticola	31	1
3352	Spring Lake Dam	Sag-2	2025-10-21	12	Procambarus sp.		1
3352	Spring Lake Dam	Sag-2	2025-10-21	12	Poecilia latipinna	30	1
3352	Spring Lake Dam	Sag-2	2025-10-21	13	Etheostoma fonticola	25	1
3352	Spring Lake Dam	Sag-2	2025-10-21	14	No fish collected		
3352	Spring Lake Dam	Sag-2	2025-10-21	15	Procambarus sp.		3
3352	Spring Lake Dam	Sag-2	2025-10-21	15	Etheostoma fonticola	27	1
3352	Spring Lake Dam	Sag-2	2025-10-21	16	Lepomis miniatus	40	1
3352	Spring Lake Dam	Sag-2	2025-10-21	16	Procambarus sp.		1

3353	Spring Lake Dam	Hydro-1	2025-10-21	1	Etheostoma fonticola	40	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	1	Etheostoma fonticola	32	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	1	Etheostoma fonticola	35	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	1	Etheostoma fonticola	35	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	1	Gambusia sp.	10	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	2	Etheostoma fonticola	31	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	2	Etheostoma fonticola	35	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	2	Gambusia sp.	17	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	2	Gambusia sp.	39	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	3	Etheostoma fonticola	35	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	3	Etheostoma fonticola	37	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	3	Procambarus sp.		1
3353	Spring Lake Dam	Hydro-1	2025-10-21	4	Etheostoma fonticola	30	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	5	Etheostoma fonticola	39	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	5	Etheostoma fonticola	32	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	5	Procambarus sp.		1
3353	Spring Lake Dam	Hydro-1	2025-10-21	6	Procambarus sp.		1
3353	Spring Lake Dam	Hydro-1	2025-10-21	6	Etheostoma fonticola	36	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	6	Etheostoma fonticola	30	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	7	Etheostoma fonticola	28	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	7	Etheostoma fonticola	35	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	7	Etheostoma fonticola	28	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	7	Etheostoma fonticola	35	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	8	Etheostoma fonticola	36	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	9	Etheostoma fonticola	38	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	10	Etheostoma fonticola	35	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	10	Etheostoma fonticola	32	1
3353	Spring Lake Dam	Hydro-1	2025-10-21	11	No fish collected		
3353	Spring Lake Dam	Hydro-1	2025-10-21	12	Procambarus sp.		1
3353	Spring Lake Dam	Hydro-1	2025-10-21	12	Etheostoma fonticola	34	1

3353	Spring Lake Dam	Hydro-1	2025-10-21	13	No fish collected		
3353	Spring Lake Dam	Hydro-1	2025-10-21	14	No fish collected		
3353	Spring Lake Dam	Hydro-1	2025-10-21	15	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	1	Gambusia sp.	25	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	1	Gambusia sp.	26	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	1	Gambusia sp.	25	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	1	Gambusia sp.	17	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	2	Etheostoma fonticola	32	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	2	Gambusia sp.	23	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	3	Etheostoma fonticola	32	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	3	Gambusia sp.	22	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	4	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	5	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	6	Etheostoma fonticola	36	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	6	Gambusia sp.	20	1
3354	Spring Lake Dam	Hydro-2	2025-10-21	7	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	8	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	9	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	10	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	11	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	12	Procambarus sp.		1
3354	Spring Lake Dam	Hydro-2	2025-10-21	13	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	14	No fish collected		
3354	Spring Lake Dam	Hydro-2	2025-10-21	15	No fish collected		
3308	I-35	Hyg-1	2025-04-24	1	Procambarus sp.		5
3308	I-35	Hyg-1	2025-04-24	1	Etheostoma fonticola	21	1
3308	I-35	Hyg-1	2025-04-24	1	Etheostoma fonticola	16	1
3308	I-35	Hyg-1	2025-04-24	2	Procambarus sp.		16
3308	I-35	Hyg-1	2025-04-24	2	Ameiurus natalis	85	1
3308	I-35	Hyg-1	2025-04-24	3	Procambarus sp.		2

3308	I-35	Hyg-1	2025-04-24	4	Procambarus sp.		4
3308	I-35	Hyg-1	2025-04-24	5	No fish collected		
3308	I-35	Hyg-1	2025-04-24	6	Procambarus sp.		3
3308	I-35	Hyg-1	2025-04-24	6	Etheostoma fonticola	31	1
3308	I-35	Hyg-1	2025-04-24	7	Procambarus sp.		2
3308	I-35	Hyg-1	2025-04-24	8	Procambarus sp.		1
3308	I-35	Hyg-1	2025-04-24	9	No fish collected		
3308	I-35	Hyg-1	2025-04-24	10	Ambloplites rupestris	106	1
3308	I-35	Hyg-1	2025-04-24	11	Procambarus sp.		1
3308	I-35	Hyg-1	2025-04-24	12	Procambarus sp.		1
3308	I-35	Hyg-1	2025-04-24	13	No fish collected		
3308	I-35	Hyg-1	2025-04-24	14	No fish collected		
3308	I-35	Hyg-1	2025-04-24	15	Procambarus sp.		1
3309	I-35	Hyg-2	2025-04-24	1	Procambarus sp.		7
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	16	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	23	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	22	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	28	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	30	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	23	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	20	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	28	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	25	1
3309	I-35	Hyg-2	2025-04-24	1	Etheostoma fonticola	30	1
3309	I-35	Hyg-2	2025-04-24	1	Gambusia sp.	17	1
3309	I-35	Hyg-2	2025-04-24	1	Gambusia sp.	10	1
3309	I-35	Hyg-2	2025-04-24	1	Gambusia sp.	24	1
3309	I-35	Hyg-2	2025-04-24	1	Gambusia sp.	10	1
3309	I-35	Hyg-2	2025-04-24	2	Etheostoma fonticola	30	1
3309	I-35	Hyg-2	2025-04-24	2	Etheostoma fonticola	25	1

3309	I-35	Hyg-2	2025-04-24	2	Etheostoma fonticola	31	1
3309	I-35	Hyg-2	2025-04-24	2	Gambusia sp.	14	1
3309	I-35	Hyg-2	2025-04-24	2	Procambarus sp.		1
3309	I-35	Hyg-2	2025-04-24	3	Ameiurus natalis	26	1
3309	I-35	Hyg-2	2025-04-24	3	Etheostoma fonticola	20	1
3309	I-35	Hyg-2	2025-04-24	3	Etheostoma fonticola	19	1
3309	I-35	Hyg-2	2025-04-24	3	Etheostoma fonticola	19	1
3309	I-35	Hyg-2	2025-04-24	3	Gambusia sp.	15	1
3309	I-35	Hyg-2	2025-04-24	3	Gambusia sp.	10	1
3309	I-35	Hyg-2	2025-04-24	3	Gambusia sp.	10	1
3309	I-35	Hyg-2	2025-04-24	4	Etheostoma fonticola	15	1
3309	I-35	Hyg-2	2025-04-24	4	Etheostoma fonticola	15	1
3309	I-35	Hyg-2	2025-04-24	4	Procambarus sp.		1
3309	I-35	Hyg-2	2025-04-24	5	No fish collected		
3309	I-35	Hyg-2	2025-04-24	6	Procambarus sp.		3
3309	I-35	Hyg-2	2025-04-24	7	Ameiurus natalis	25	1
3309	I-35	Hyg-2	2025-04-24	7	Procambarus sp.		2
3309	I-35	Hyg-2	2025-04-24	8	Procambarus sp.		3
3309	I-35	Hyg-2	2025-04-24	9	Etheostoma fonticola	16	1
3309	I-35	Hyg-2	2025-04-24	9	Procambarus sp.		1
3309	I-35	Hyg-2	2025-04-24	10	Ameiurus natalis	24	1
3309	I-35	Hyg-2	2025-04-24	11	No fish collected		
3309	I-35	Hyg-2	2025-04-24	12	Procambarus sp.		1
3309	I-35	Hyg-2	2025-04-24	13	Etheostoma fonticola	16	1
3309	I-35	Hyg-2	2025-04-24	14	No fish collected		
3309	I-35	Hyg-2	2025-04-24	15	No fish collected		
3310	I-35	Open-2	2025-04-24	1	No fish collected		
3310	I-35	Open-2	2025-04-24	2	No fish collected		
3310	I-35	Open-2	2025-04-24	3	No fish collected		
3310	I-35	Open-2	2025-04-24	4	No fish collected		

3310	I-35	Open-2	2025-04-24	5	No fish collected		
3310	I-35	Open-2	2025-04-24	6	No fish collected		
3310	I-35	Open-2	2025-04-24	7	No fish collected		
3310	I-35	Open-2	2025-04-24	8	No fish collected		
3310	I-35	Open-2	2025-04-24	9	No fish collected		
3310	I-35	Open-2	2025-04-24	10	No fish collected		
3311	I-35	Hydro-1	2025-04-24	1	Notropis amabilis	32	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	25	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	27	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	15	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	15	1
3311	I-35	Hydro-1	2025-04-24	1	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	1	Procambarus sp.		3
3311	I-35	Hydro-1	2025-04-24	1	Etheostoma fonticola	22	1
3311	I-35	Hydro-1	2025-04-24	1	Etheostoma fonticola	28	1
3311	I-35	Hydro-1	2025-04-24	2	Procambarus sp.		9
3311	I-35	Hydro-1	2025-04-24	2	Gambusia sp.	15	1
3311	I-35	Hydro-1	2025-04-24	2	Gambusia sp.	15	1
3311	I-35	Hydro-1	2025-04-24	2	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	2	Gambusia sp.	12	1
3311	I-35	Hydro-1	2025-04-24	2	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	2	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	2	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	2	Etheostoma fonticola	27	1
3311	I-35	Hydro-1	2025-04-24	2	Etheostoma fonticola	28	1

3311	I-35	Hydro-1	2025-04-24	2	Etheostoma fonticola	25	1
3311	I-35	Hydro-1	2025-04-24	2	Etheostoma fonticola	24	1
3311	I-35	Hydro-1	2025-04-24	3	Etheostoma fonticola	26	1
3311	I-35	Hydro-1	2025-04-24	3	Etheostoma fonticola	16	1
3311	I-35	Hydro-1	2025-04-24	3	Etheostoma fonticola	16	1
3311	I-35	Hydro-1	2025-04-24	3	Gambusia sp.	18	1
3311	I-35	Hydro-1	2025-04-24	3	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	3	Gambusia sp.	10	1
3311	I-35	Hydro-1	2025-04-24	3	Procambarus sp.		2
3311	I-35	Hydro-1	2025-04-24	4	Gambusia sp.	16	1
3311	I-35	Hydro-1	2025-04-24	4	Etheostoma fonticola	15	1
3311	I-35	Hydro-1	2025-04-24	4	Ameiurus natalis	14	1
3311	I-35	Hydro-1	2025-04-24	4	Procambarus sp.		1
3311	I-35	Hydro-1	2025-04-24	5	Hypostomus plecostomus	20	1
3311	I-35	Hydro-1	2025-04-24	5	Procambarus sp.		2
3311	I-35	Hydro-1	2025-04-24	5	Gambusia sp.	8	1
3311	I-35	Hydro-1	2025-04-24	5	Gambusia sp.		1
3311	I-35	Hydro-1	2025-04-24	5	Gambusia sp.		1
3311	I-35	Hydro-1	2025-04-24	5	Gambusia sp.		1
3311	I-35	Hydro-1	2025-04-24	6	Etheostoma fonticola	20	1
3311	I-35	Hydro-1	2025-04-24	6	Procambarus sp.		2
3311	I-35	Hydro-1	2025-04-24	6	Gambusia sp.		1
3311	I-35	Hydro-1	2025-04-24	6	Gambusia sp.		1
3311	I-35	Hydro-1	2025-04-24	6	Gambusia sp.		1
3311	I-35	Hydro-1	2025-04-24	7	Procambarus sp.		2
3311	I-35	Hydro-1	2025-04-24	8	Procambarus sp.		2
3311	I-35	Hydro-1	2025-04-24	9	Procambarus sp.		3
3311	I-35	Hydro-1	2025-04-24	9	Etheostoma fonticola	19	1
3311	I-35	Hydro-1	2025-04-24	10	No fish collected		
3311	I-35	Hydro-1	2025-04-24	11	Procambarus sp.		1

3311	I-35	Hydro-1	2025-04-24	11	Gambusia sp.		1
3311	I-35	Hydro-1	2025-04-24	12	Procambarus sp.		2
3311	I-35	Hydro-1	2025-04-24	13	No fish collected		
3311	I-35	Hydro-1	2025-04-24	14	No fish collected		
3311	I-35	Hydro-1	2025-04-24	15	No fish collected		
3312	I-35	Hydro-2	2025-04-24	1	Etheostoma fonticola	30	1
3312	I-35	Hydro-2	2025-04-24	1	Etheostoma fonticola	31	1
3312	I-35	Hydro-2	2025-04-24	1	Etheostoma fonticola	26	1
3312	I-35	Hydro-2	2025-04-24	1	Etheostoma fonticola	25	1
3312	I-35	Hydro-2	2025-04-24	1	Etheostoma fonticola	29	1
3312	I-35	Hydro-2	2025-04-24	1	Procambarus sp.		5
3312	I-35	Hydro-2	2025-04-24	1	Ameiurus natalis	24	1
3312	I-35	Hydro-2	2025-04-24	1	Gambusia sp.	15	1
3312	I-35	Hydro-2	2025-04-24	2	Gambusia sp.	20	1
3312	I-35	Hydro-2	2025-04-24	2	Ameiurus natalis	21	1
3312	I-35	Hydro-2	2025-04-24	2	Ameiurus natalis	27	1
3312	I-35	Hydro-2	2025-04-24	2	Ameiurus natalis	20	1
3312	I-35	Hydro-2	2025-04-24	2	Procambarus sp.		1
3312	I-35	Hydro-2	2025-04-24	3	Procambarus sp.		4
3312	I-35	Hydro-2	2025-04-24	3	Gambusia sp.	30	1
3312	I-35	Hydro-2	2025-04-24	3	Gambusia sp.	26	1
3312	I-35	Hydro-2	2025-04-24	3	Etheostoma fonticola	19	1
3312	I-35	Hydro-2	2025-04-24	3	Etheostoma fonticola	24	1
3312	I-35	Hydro-2	2025-04-24	3	Etheostoma fonticola	16	1
3312	I-35	Hydro-2	2025-04-24	4	Procambarus sp.		2
3312	I-35	Hydro-2	2025-04-24	5	Gambusia sp.	31	1
3312	I-35	Hydro-2	2025-04-24	5	Procambarus sp.		2
3312	I-35	Hydro-2	2025-04-24	5	Etheostoma fonticola	24	1
3312	I-35	Hydro-2	2025-04-24	6	No fish collected		
3312	I-35	Hydro-2	2025-04-24	7	Procambarus sp.		2

3312	I-35	Hydro-2	2025-04-24	7	Etheostoma fonticola	29	1
3312	I-35	Hydro-2	2025-04-24	8	No fish collected		
3312	I-35	Hydro-2	2025-04-24	9	Etheostoma fonticola	30	1
3312	I-35	Hydro-2	2025-04-24	9	Procambarus sp.		1
3312	I-35	Hydro-2	2025-04-24	10	No fish collected		
3312	I-35	Hydro-2	2025-04-24	11	Etheostoma fonticola	19	1
3312	I-35	Hydro-2	2025-04-24	11	Etheostoma fonticola	26	1
3312	I-35	Hydro-2	2025-04-24	12	No fish collected		
3312	I-35	Hydro-2	2025-04-24	13	Etheostoma fonticola	22	1
3312	I-35	Hydro-2	2025-04-24	14	Procambarus sp.		2
3312	I-35	Hydro-2	2025-04-24	15	No fish collected		
3355	City Park	Open-1	2025-10-22	1	No fish collected		
3355	City Park	Open-1	2025-10-22	2	No fish collected		
3355	City Park	Open-1	2025-10-22	3	No fish collected		
3355	City Park	Open-1	2025-10-22	4	No fish collected		
3355	City Park	Open-1	2025-10-22	5	No fish collected		
3355	City Park	Open-1	2025-10-22	6	No fish collected		
3355	City Park	Open-1	2025-10-22	7	No fish collected		
3355	City Park	Open-1	2025-10-22	8	No fish collected		
3355	City Park	Open-1	2025-10-22	9	No fish collected		
3355	City Park	Open-1	2025-10-22	10	No fish collected		
3356	City Park	Open-2	2025-10-22	1	No fish collected		
3356	City Park	Open-2	2025-10-22	2	No fish collected		
3356	City Park	Open-2	2025-10-22	3	No fish collected		
3356	City Park	Open-2	2025-10-22	4	No fish collected		
3356	City Park	Open-2	2025-10-22	5	No fish collected		
3356	City Park	Open-2	2025-10-22	6	No fish collected		
3356	City Park	Open-2	2025-10-22	7	No fish collected		
3356	City Park	Open-2	2025-10-22	8	No fish collected		
3356	City Park	Open-2	2025-10-22	9	No fish collected		

3356	City Park	Open-2	2025-10-22	10	No fish collected		
3357	City Park	Bryo-1	2025-10-22	13	No fish collected		
3357	City Park	Bryo-1	2025-10-22	14	Procambarus sp.		3
3357	City Park	Bryo-1	2025-10-22	15	No fish collected		
3357	City Park	Bryo-1	2025-10-22	5	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	25	1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	28	1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	22	1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	30	1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	25	1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	22	1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	25	1
3357	City Park	Bryo-1	2025-10-22	1	Etheostoma fonticola	11	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	22	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	15	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	15	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	20	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	25	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	10	1
3357	City Park	Bryo-1	2025-10-22	1	Gambusia sp.	15	1

3357	City Park	Bryo-1	2025-10-22	2	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	3	Etheostoma fonticola	19	1
3357	City Park	Bryo-1	2025-10-22	3	Etheostoma fonticola	30	1
3357	City Park	Bryo-1	2025-10-22	3	Etheostoma fonticola	31	1
3357	City Park	Bryo-1	2025-10-22	3	Etheostoma fonticola	24	1
3357	City Park	Bryo-1	2025-10-22	3	Etheostoma fonticola	13	1
3357	City Park	Bryo-1	2025-10-22	3	Procambarus sp.		5
3357	City Park	Bryo-1	2025-10-22	3	Palaemonetes sp.		1
3357	City Park	Bryo-1	2025-10-22	3	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	3	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	3	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	3	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	3	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	3	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	4	Procambarus sp.		2
3357	City Park	Bryo-1	2025-10-22	4	Etheostoma fonticola	26	1
3357	City Park	Bryo-1	2025-10-22	4	Etheostoma fonticola	29	1
3357	City Park	Bryo-1	2025-10-22	5	Etheostoma fonticola	15	1
3357	City Park	Bryo-1	2025-10-22	5	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	6	Procambarus sp.		1
3357	City Park	Bryo-1	2025-10-22	6	Etheostoma fonticola	31	1
3357	City Park	Bryo-1	2025-10-22	6	Etheostoma fonticola	19	1
3357	City Park	Bryo-1	2025-10-22	6	Etheostoma fonticola	28	1
3357	City Park	Bryo-1	2025-10-22	7	Gambusia sp.		1
3357	City Park	Bryo-1	2025-10-22	8	Procambarus sp.		1
3357	City Park	Bryo-1	2025-10-22	9	Etheostoma fonticola	24	1
3357	City Park	Bryo-1	2025-10-22	10	Etheostoma fonticola	27	1
3357	City Park	Bryo-1	2025-10-22	10	Etheostoma fonticola	31	1
3357	City Park	Bryo-1	2025-10-22	11	Lepomis miniatus	125	1
3357	City Park	Bryo-1	2025-10-22	12	No fish collected		

3358	City Park	Bryo-2	2025-10-22	1	Etheostoma fonticola	29	1
3358	City Park	Bryo-2	2025-10-22	1	Etheostoma fonticola	22	1
3358	City Park	Bryo-2	2025-10-22	1	Etheostoma fonticola	25	1
3358	City Park	Bryo-2	2025-10-22	1	Etheostoma fonticola	28	1
3358	City Park	Bryo-2	2025-10-22	1	Procambarus sp.		8
3358	City Park	Bryo-2	2025-10-22	2	Procambarus sp.		4
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	2	Etheostoma fonticola	10	1
3358	City Park	Bryo-2	2025-10-22	2	Etheostoma fonticola	28	1
3358	City Park	Bryo-2	2025-10-22	2	Etheostoma fonticola	20	1
3358	City Park	Bryo-2	2025-10-22	3	Procambarus sp.		5
3358	City Park	Bryo-2	2025-10-22	3	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	3	Gambusia sp.		1

3358	City Park	Bryo-2	2025-10-22	3	Etheostoma fonticola	32	1
3358	City Park	Bryo-2	2025-10-22	3	Etheostoma fonticola	15	1
3358	City Park	Bryo-2	2025-10-22	3	Etheostoma fonticola	22	1
3358	City Park	Bryo-2	2025-10-22	3	Etheostoma fonticola	23	1
3358	City Park	Bryo-2	2025-10-22	4	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	4	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	4	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	4	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	4	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	4	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	4	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	4	Etheostoma fonticola	26	1
3358	City Park	Bryo-2	2025-10-22	4	Etheostoma fonticola	28	1
3358	City Park	Bryo-2	2025-10-22	4	Etheostoma fonticola	28	1
3358	City Park	Bryo-2	2025-10-22	4	Etheostoma fonticola	24	1
3358	City Park	Bryo-2	2025-10-22	4	Etheostoma fonticola	20	1
3358	City Park	Bryo-2	2025-10-22	4	Procambarus sp.		3
3358	City Park	Bryo-2	2025-10-22	5	Procambarus sp.		3
3358	City Park	Bryo-2	2025-10-22	5	Etheostoma fonticola	28	1
3358	City Park	Bryo-2	2025-10-22	5	Etheostoma fonticola	16	1
3358	City Park	Bryo-2	2025-10-22	5	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	6	Etheostoma fonticola	27	1
3358	City Park	Bryo-2	2025-10-22	4	Etheostoma fonticola	28	1
3358	City Park	Bryo-2	2025-10-22	7	Procambarus sp.		5
3358	City Park	Bryo-2	2025-10-22	7	Etheostoma fonticola	19	1
3358	City Park	Bryo-2	2025-10-22	7	Etheostoma fonticola	15	1
3358	City Park	Bryo-2	2025-10-22	8	Procambarus sp.		2
3358	City Park	Bryo-2	2025-10-22	8	Etheostoma fonticola	27	1
3358	City Park	Bryo-2	2025-10-22	8	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	8	Gambusia sp.		1

3358	City Park	Bryo-2	2025-10-22	9	No fish collected		
3358	City Park	Bryo-2	2025-10-22	10	Procambarus sp.		5
3358	City Park	Bryo-2	2025-10-22	10	Etheostoma fonticola	22	1
3358	City Park	Bryo-2	2025-10-22	11	Etheostoma fonticola	30	1
3358	City Park	Bryo-2	2025-10-22	11	Etheostoma fonticola	34	1
3358	City Park	Bryo-2	2025-10-22	12	Procambarus sp.		1
3358	City Park	Bryo-2	2025-10-22	12	Gambusia sp.		1
3358	City Park	Bryo-2	2025-10-22	13	No fish collected		
3358	City Park	Bryo-2	2025-10-22	14	Procambarus sp.		1
3358	City Park	Bryo-2	2025-10-22	15	Etheostoma fonticola	30	1
3358	City Park	Bryo-2	2025-10-22	16	Etheostoma fonticola	27	1
3358	City Park	Bryo-2	2025-10-22	15	Etheostoma fonticola	30	1
3358	City Park	Bryo-2	2025-10-22	17	No fish collected		
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.		7
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	23	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	22	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	23	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	24	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	15	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	20	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	28	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	28	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	15	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	10	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	22	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	22	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	10	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	10	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	10	1
3359	City Park	Cab-1	2025-10-22	1	Gambusia sp.	15	1

3359	City Park	Cab-1	2025-10-22	3	Gambusia sp.		1
3359	City Park	Cab-1	2025-10-22	3	Etheostoma fonticola	34	1
3359	City Park	Cab-1	2025-10-22	3	Etheostoma fonticola	29	1
3359	City Park	Cab-1	2025-10-22	3	Etheostoma fonticola	16	1
3359	City Park	Cab-1	2025-10-22	3	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	3	Etheostoma fonticola	16	1
3359	City Park	Cab-1	2025-10-22	4	Etheostoma fonticola	24	1
3359	City Park	Cab-1	2025-10-22	4	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	4	Etheostoma fonticola	18	1
3359	City Park	Cab-1	2025-10-22	4	Etheostoma fonticola	31	1
3359	City Park	Cab-1	2025-10-22	4	Etheostoma fonticola	20	1
3359	City Park	Cab-1	2025-10-22	4	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	5	Procambarus sp.		3
3359	City Park	Cab-1	2025-10-22	5	Palaemonetes sp.		1
3359	City Park	Cab-1	2025-10-22	5	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	5	Etheostoma fonticola	30	1
3359	City Park	Cab-1	2025-10-22	5	Etheostoma fonticola	17	1
3359	City Park	Cab-1	2025-10-22	5	Etheostoma fonticola	15	1
3359	City Park	Cab-1	2025-10-22	5	Etheostoma fonticola	27	1
3359	City Park	Cab-1	2025-10-22	5	Gambusia sp.		1
3359	City Park	Cab-1	2025-10-22	6	Procambarus sp.		2
3359	City Park	Cab-1	2025-10-22	6	Etheostoma fonticola	21	1
3359	City Park	Cab-1	2025-10-22	6	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	6	Etheostoma fonticola	26	1
3359	City Park	Cab-1	2025-10-22	7	Etheostoma fonticola	20	1
3359	City Park	Cab-1	2025-10-22	7	Etheostoma fonticola	21	1
3359	City Park	Cab-1	2025-10-22	7	Etheostoma fonticola	20	1
3359	City Park	Cab-1	2025-10-22	7	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	7	Etheostoma fonticola	23	1
3359	City Park	Cab-1	2025-10-22	7	Etheostoma fonticola	21	1

3359	City Park	Cab-1	2025-10-22	7	Etheostoma fonticola	26	1
3359	City Park	Cab-1	2025-10-22	8	Procambarus sp.		1
3359	City Park	Cab-1	2025-10-22	8	Etheostoma fonticola	27	1
3359	City Park	Cab-1	2025-10-22	8	Etheostoma fonticola	27	1
3359	City Park	Cab-1	2025-10-22	8	Etheostoma fonticola	15	1
3359	City Park	Cab-1	2025-10-22	8	Etheostoma fonticola	32	1
3359	City Park	Cab-1	2025-10-22	8	Etheostoma fonticola	12	1
3359	City Park	Cab-1	2025-10-22	8	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	8	Etheostoma fonticola	25	1
3359	City Park	Cab-1	2025-10-22	9	Procambarus sp.		4
3359	City Park	Cab-1	2025-10-22	9	Etheostoma fonticola	21	1
3359	City Park	Cab-1	2025-10-22	9	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	9	Etheostoma fonticola	20	1
3359	City Park	Cab-1	2025-10-22	9	Etheostoma fonticola	25	1
3359	City Park	Cab-1	2025-10-22	9	Etheostoma fonticola	16	1
3359	City Park	Cab-1	2025-10-22	9	Gambusia sp.		1
3359	City Park	Cab-1	2025-10-22	10	Etheostoma fonticola	30	1
3359	City Park	Cab-1	2025-10-22	10	Etheostoma fonticola	30	1
3359	City Park	Cab-1	2025-10-22	10	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	10	Gambusia sp.		1
3359	City Park	Cab-1	2025-10-22	11	Etheostoma fonticola	28	1
3359	City Park	Cab-1	2025-10-22	11	Etheostoma fonticola	12	1
3359	City Park	Cab-1	2025-10-22	11	Etheostoma fonticola	19	1
3359	City Park	Cab-1	2025-10-22	11	Palaemonetes sp.		1
3359	City Park	Cab-1	2025-10-22	12	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	13	Etheostoma fonticola	30	1
3359	City Park	Cab-1	2025-10-22	13	Etheostoma fonticola	26	1
3359	City Park	Cab-1	2025-10-22	13	Etheostoma fonticola	22	1
3359	City Park	Cab-1	2025-10-22	14	Procambarus sp.		2
3359	City Park	Cab-1	2025-10-22	14	Etheostoma fonticola	21	1

3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	30	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	28	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	24	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	28	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	33	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	24	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	32	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	25	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	18	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	24	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	20	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	15	1
3360	City Park	Cab-2	2025-10-22	1	Etheostoma fonticola	22	1
3360	City Park	Cab-2	2025-10-22	1	Poecilia latipinna	18	1
3360	City Park	Cab-2	2025-10-22	1	Poecilia latipinna	18	1
3360	City Park	Cab-2	2025-10-22	1	Poecilia latipinna	21	1
3360	City Park	Cab-2	2025-10-22	1	Poecilia latipinna	26	1
3360	City Park	Cab-2	2025-10-22	1	Poecilia latipinna	15	1

3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	2	Poecilia latipinna	25	
3360	City Park	Cab-2	2025-10-22	2	Poecilia latipinna	15	
3360	City Park	Cab-2	2025-10-22	2	Poecilia latipinna	20	
3360	City Park	Cab-2	2025-10-22	2	Poecilia latipinna	25	
3360	City Park	Cab-2	2025-10-22	2	Poecilia latipinna	25	
3360	City Park	Cab-2	2025-10-22	2	Poecilia latipinna	21	

3360	City Park	Cab-2	2025-10-22	5	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	5	Poecilia latipinna		1
3360	City Park	Cab-2	2025-10-22	5	Poecilia latipinna		1
3360	City Park	Cab-2	2025-10-22	5	Poecilia latipinna		1
3360	City Park	Cab-2	2025-10-22	6	Poecilia latipinna		1
3360	City Park	Cab-2	2025-10-22	6	Poecilia latipinna		1
3360	City Park	Cab-2	2025-10-22	6	Procambarus sp.		2
3360	City Park	Cab-2	2025-10-22	6	Etheostoma fonticola	26	1
3360	City Park	Cab-2	2025-10-22	6	Etheostoma fonticola	25	1
3360	City Park	Cab-2	2025-10-22	7	Etheostoma fonticola	25	1
3360	City Park	Cab-2	2025-10-22	7	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	7	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	7	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	7	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	7	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	7	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	8	Etheostoma fonticola	34	1
3360	City Park	Cab-2	2025-10-22	8	Etheostoma fonticola	30	1
3360	City Park	Cab-2	2025-10-22	8	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	8	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	9	Etheostoma fonticola	32	1
3360	City Park	Cab-2	2025-10-22	9	Etheostoma fonticola	20	1
3360	City Park	Cab-2	2025-10-22	10	Procambarus sp.		3
3360	City Park	Cab-2	2025-10-22	10	Etheostoma fonticola	28	1
3360	City Park	Cab-2	2025-10-22	10	Etheostoma fonticola	25	1
3360	City Park	Cab-2	2025-10-22	10	Etheostoma fonticola	31	1
3360	City Park	Cab-2	2025-10-22	11	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	11	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	12	Etheostoma fonticola	34	1
3360	City Park	Cab-2	2025-10-22	12	Etheostoma fonticola	28	1

3360	City Park	Cab-2	2025-10-22	13	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	14	Procambarus sp.		1
3360	City Park	Cab-2	2025-10-22	15	Procambarus sp.		1
3360	City Park	Cab-2	2025-10-22	15	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	28	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	15	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	20	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	15	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	15	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	15	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	20	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	15	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	28	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	12	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	10	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	12	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.	12	1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1
3360	City Park	Cab-2	2025-10-22	1	Gambusia sp.		1

3361	City Park	Sag-1	2025-10-22	4	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	4	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	4	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Poecilia latipinna	15	1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	5	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	6	Procambarus sp.		1
3361	City Park	Sag-1	2025-10-22	6	Etheostoma fonticola	30	1
3361	City Park	Sag-1	2025-10-22	6	Etheostoma fonticola	32	1
3361	City Park	Sag-1	2025-10-22	6	Lepomis sp.	20	1
3361	City Park	Sag-1	2025-10-22	6	Palaemonetes sp.		1
3361	City Park	Sag-1	2025-10-22	7	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	8	Procambarus sp.		2

3361	City Park	Sag-1	2025-10-22	8	Lepomis miniatus	70	1
3361	City Park	Sag-1	2025-10-22	8	Etheostoma fonticola	20	1
3361	City Park	Sag-1	2025-10-22	8	Etheostoma fonticola	26	1
3361	City Park	Sag-1	2025-10-22	8	Etheostoma fonticola	24	1
3361	City Park	Sag-1	2025-10-22	8	Palaemonetes sp.		1
3361	City Park	Sag-1	2025-10-22	9	Etheostoma fonticola	30	1
3361	City Park	Sag-1	2025-10-22	9	Etheostoma fonticola	30	1
3361	City Park	Sag-1	2025-10-22	10	Procambarus sp.		1
3361	City Park	Sag-1	2025-10-22	10	Etheostoma fonticola	20	1
3361	City Park	Sag-1	2025-10-22	10	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	11	Procambarus sp.		1
3361	City Park	Sag-1	2025-10-22	11	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	12	Procambarus sp.		2
3361	City Park	Sag-1	2025-10-22	12	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	13	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	14	Gambusia sp.		3
3361	City Park	Sag-1	2025-10-22	14	Poecilia latipinna	19	1
3361	City Park	Sag-1	2025-10-22	15	Lepomis miniatus	90	1
3361	City Park	Sag-1	2025-10-22	15	Etheostoma fonticola	30	1
3361	City Park	Sag-1	2025-10-22	15	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	16	Procambarus sp.		3
3361	City Park	Sag-1	2025-10-22	16	Etheostoma fonticola	23	1
3361	City Park	Sag-1	2025-10-22	17	Gambusia sp.		1
3361	City Park	Sag-1	2025-10-22	2	Etheostoma fonticola	32	1
3362	City Park	Sag-2	2025-10-22	1	Procambarus sp.		1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.	12	1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.	20	1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.	35	1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.	22	1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.	25	1

3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	2	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	1	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	1	Etheostoma fonticola	36	1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	4	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	4	Gambusia sp.		1

3362	City Park	Sag-2	2025-10-22	4	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	4	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	4	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	4	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	4	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	5	Etheostoma fonticola	25	1
3362	City Park	Sag-2	2025-10-22	5	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	5	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	5	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	5	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	5	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	6	Etheostoma fonticola	32	1
3362	City Park	Sag-2	2025-10-22	6	Etheostoma fonticola	28	1
3362	City Park	Sag-2	2025-10-22	6	Etheostoma fonticola	20	1
3362	City Park	Sag-2	2025-10-22	6	Palaemonetes sp.		1
3362	City Park	Sag-2	2025-10-22	7	Etheostoma fonticola	31	1
3362	City Park	Sag-2	2025-10-22	7	Etheostoma fonticola	34	1
3362	City Park	Sag-2	2025-10-22	7	Etheostoma fonticola	23	1
3362	City Park	Sag-2	2025-10-22	7	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	8	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	8	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	8	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	8	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	9	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	9	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	10	Etheostoma fonticola	28	1
3362	City Park	Sag-2	2025-10-22	10	Procambarus sp.		1
3362	City Park	Sag-2	2025-10-22	11	Etheostoma fonticola	35	1
3362	City Park	Sag-2	2025-10-22	11	Etheostoma fonticola	39	1
3362	City Park	Sag-2	2025-10-22	12	Gambusia sp.		1

3362	City Park	Sag-2	2025-10-22	13	No fish collected		
3362	City Park	Sag-2	2025-10-22	14	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	15	Etheostoma fonticola	19	1
3362	City Park	Sag-2	2025-10-22	16	Herichthys cyanoguttatus	43	1
3362	City Park	Sag-2	2025-10-22	6	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	6	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	6	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	6	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3362	City Park	Sag-2	2025-10-22	3	Gambusia sp.		1
3363	I-35	Open-1	2025-10-23	1	No fish collected		
3363	I-35	Open-1	2025-10-23	2	No fish collected		
3363	I-35	Open-1	2025-10-23	3	No fish collected		
3363	I-35	Open-1	2025-10-23	4	No fish collected		
3363	I-35	Open-1	2025-10-23	5	No fish collected		
3363	I-35	Open-1	2025-10-23	6	No fish collected		
3363	I-35	Open-1	2025-10-23	7	No fish collected		
3363	I-35	Open-1	2025-10-23	8	No fish collected		
3363	I-35	Open-1	2025-10-23	9	No fish collected		
3363	I-35	Open-1	2025-10-23	10	No fish collected		
3364	I-35	Open-2	2025-10-23	1	No fish collected		
3364	I-35	Open-2	2025-10-23	2	No fish collected		
3364	I-35	Open-2	2025-10-23	3	No fish collected		
3364	I-35	Open-2	2025-10-23	4	No fish collected		
3364	I-35	Open-2	2025-10-23	5	No fish collected		
3364	I-35	Open-2	2025-10-23	6	No fish collected		
3364	I-35	Open-2	2025-10-23	7	No fish collected		
3364	I-35	Open-2	2025-10-23	8	No fish collected		
3364	I-35	Open-2	2025-10-23	9	No fish collected		
3364	I-35	Open-2	2025-10-23	10	No fish collected		

3365	I-35	Lud-1	2025-10-23	1	Gambusia sp.	10	1
3365	I-35	Lud-1	2025-10-23	1	Gambusia sp.	18	1
3365	I-35	Lud-1	2025-10-23	1	Gambusia sp.	24	1
3365	I-35	Lud-1	2025-10-23	1	Gambusia sp.	28	1
3365	I-35	Lud-1	2025-10-23	1	Procambarus sp.		2
3365	I-35	Lud-1	2025-10-23	2	Procambarus sp.		1
3365	I-35	Lud-1	2025-10-23	2	Gambusia sp.	14	1
3365	I-35	Lud-1	2025-10-23	2	Gambusia sp.	14	1
3365	I-35	Lud-1	2025-10-23	3	No fish collected		
3365	I-35	Lud-1	2025-10-23	4	Gambusia sp.	10	1
3365	I-35	Lud-1	2025-10-23	4	Procambarus sp.		1
3365	I-35	Lud-1	2025-10-23	5	Procambarus sp.		2
3365	I-35	Lud-1	2025-10-23	5	Gambusia sp.	10	1
3365	I-35	Lud-1	2025-10-23	5	Gambusia sp.	19	1
3365	I-35	Lud-1	2025-10-23	5	Gambusia sp.	7	1
3365	I-35	Lud-1	2025-10-23	6	Gambusia sp.	21	1
3365	I-35	Lud-1	2025-10-23	7	Gambusia sp.	14	1
3365	I-35	Lud-1	2025-10-23	8	No fish collected		
3365	I-35	Lud-1	2025-10-23	9	Procambarus sp.		2
3365	I-35	Lud-1	2025-10-23	10	Procambarus sp.		1
3365	I-35	Lud-1	2025-10-23	10	Gambusia sp.	16	1
3365	I-35	Lud-1	2025-10-23	11	Procambarus sp.		2
3365	I-35	Lud-1	2025-10-23	12	No fish collected		
3365	I-35	Lud-1	2025-10-23	13	No fish collected		
3365	I-35	Lud-1	2025-10-23	14	Gambusia sp.	10	1
3365	I-35	Lud-1	2025-10-23	15	No fish collected		
3366	I-35	Lud-2	2025-10-23	1	Herichthys cyanoguttatus	31	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	21	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	18	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	25	1

3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	16	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	18	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	10	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	16	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	10	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	18	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	18	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	15	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	16	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	15	1
3366	I-35	Lud-2	2025-10-23	1	Gambusia sp.	12	1
3366	I-35	Lud-2	2025-10-23	2	Gambusia sp.	15	1
3366	I-35	Lud-2	2025-10-23	2	Gambusia sp.	14	1
3366	I-35	Lud-2	2025-10-23	3	Procambarus sp.		4
3366	I-35	Lud-2	2025-10-23	4	Procambarus sp.		5
3366	I-35	Lud-2	2025-10-23	4	Gambusia sp.	17	1
3366	I-35	Lud-2	2025-10-23	4	Gambusia sp.	15	1
3366	I-35	Lud-2	2025-10-23	5	Gambusia sp.	15	1
3366	I-35	Lud-2	2025-10-23	6	Procambarus sp.		2
3366	I-35	Lud-2	2025-10-23	7	Procambarus sp.		1
3366	I-35	Lud-2	2025-10-23	8	Procambarus sp.		1
3366	I-35	Lud-2	2025-10-23	9	Etheostoma fonticola	26	1
3366	I-35	Lud-2	2025-10-23	9	Etheostoma fonticola	31	1
3366	I-35	Lud-2	2025-10-23	10	Etheostoma fonticola	16	1
3366	I-35	Lud-2	2025-10-23	10	Procambarus sp.		3
3366	I-35	Lud-2	2025-10-23	11	Procambarus sp.		2
3366	I-35	Lud-2	2025-10-23	12	Etheostoma fonticola	16	1
3366	I-35	Lud-2	2025-10-23	13	No fish collected		
3366	I-35	Lud-2	2025-10-23	14	Procambarus sp.		1
3366	I-35	Lud-2	2025-10-23	15	Procambarus sp.		1

3366	I-35	Lud-2	2025-10-23	1	Procambarus sp.		5
3366	I-35	Lud-2	2025-10-23	2	Procambarus sp.		2
3367	I-35	Cab-1	2025-10-23	1	Gambusia sp.	22	1
3367	I-35	Cab-1	2025-10-23	1	Gambusia sp.	22	1
3367	I-35	Cab-1	2025-10-23	1	Gambusia sp.	18	1
3367	I-35	Cab-1	2025-10-23	1	Gambusia sp.	18	1
3367	I-35	Cab-1	2025-10-23	1	Gambusia sp.	10	1
3367	I-35	Cab-1	2025-10-23	1	Procambarus sp.		4
3367	I-35	Cab-1	2025-10-23	1	Etheostoma fonticola	30	1
3367	I-35	Cab-1	2025-10-23	1	Etheostoma fonticola	24	1
3367	I-35	Cab-1	2025-10-23	2	Procambarus sp.		9
3367	I-35	Cab-1	2025-10-23	2	Etheostoma fonticola	27	1
3367	I-35	Cab-1	2025-10-23	2	Etheostoma fonticola	12	1
3367	I-35	Cab-1	2025-10-23	2	Etheostoma fonticola	19	1
3367	I-35	Cab-1	2025-10-23	2	Etheostoma fonticola	13	1
3367	I-35	Cab-1	2025-10-23	2	Gambusia sp.	18	1
3367	I-35	Cab-1	2025-10-23	2	Gambusia sp.	15	1
3367	I-35	Cab-1	2025-10-23	2	Gambusia sp.	12	1
3367	I-35	Cab-1	2025-10-23	3	Etheostoma fonticola	22	1
3367	I-35	Cab-1	2025-10-23	3	Etheostoma fonticola	34	1
3367	I-35	Cab-1	2025-10-23	3	Etheostoma fonticola	25	1
3367	I-35	Cab-1	2025-10-23	3	Etheostoma fonticola	30	1
3367	I-35	Cab-1	2025-10-23	3	Gambusia sp.	21	1
3367	I-35	Cab-1	2025-10-23	3	Gambusia sp.	20	1
3367	I-35	Cab-1	2025-10-23	4	Herichthys cyanoguttatus	29	1
3367	I-35	Cab-1	2025-10-23	4	Procambarus sp.		2
3367	I-35	Cab-1	2025-10-23	4	Etheostoma fonticola	32	1
3367	I-35	Cab-1	2025-10-23	4	Etheostoma fonticola	11	1
3367	I-35	Cab-1	2025-10-23	4	Etheostoma fonticola	18	1
3367	I-35	Cab-1	2025-10-23	4	Etheostoma fonticola	10	1

3367	I-35	Cab-1	2025-10-23	4	Gambusia sp.	10	1
3367	I-35	Cab-1	2025-10-23	5	Etheostoma fonticola	24	1
3367	I-35	Cab-1	2025-10-23	5	Etheostoma fonticola	32	1
3367	I-35	Cab-1	2025-10-23	5	Gambusia sp.	15	1
3367	I-35	Cab-1	2025-10-23	5	Gambusia sp.	14	1
3367	I-35	Cab-1	2025-10-23	5	Procambarus sp.		2
3367	I-35	Cab-1	2025-10-23	6	Procambarus sp.		2
3367	I-35	Cab-1	2025-10-23	6	Etheostoma fonticola	28	1
3367	I-35	Cab-1	2025-10-23	7	Procambarus sp.		3
3367	I-35	Cab-1	2025-10-23	7	Etheostoma fonticola	27	1
3367	I-35	Cab-1	2025-10-23	7	Etheostoma fonticola	18	1
3367	I-35	Cab-1	2025-10-23	8	Procambarus sp.		2
3367	I-35	Cab-1	2025-10-23	9	Etheostoma fonticola	36	1
3367	I-35	Cab-1	2025-10-23	9	Etheostoma fonticola	20	1
3367	I-35	Cab-1	2025-10-23	9	Etheostoma fonticola	16	1
3367	I-35	Cab-1	2025-10-23	9	Gambusia sp.	10	1
3367	I-35	Cab-1	2025-10-23	9	Procambarus sp.		3
3367	I-35	Cab-1	2025-10-23	10	Gambusia sp.	10	1
3367	I-35	Cab-1	2025-10-23	11	Etheostoma fonticola	29	1
3367	I-35	Cab-1	2025-10-23	11	Etheostoma fonticola	14	1
3367	I-35	Cab-1	2025-10-23	11	Etheostoma fonticola	30	1
3367	I-35	Cab-1	2025-10-23	12	Procambarus sp.		6
3367	I-35	Cab-1	2025-10-23	12	Etheostoma fonticola	29	1
3367	I-35	Cab-1	2025-10-23	12	Etheostoma fonticola	29	1
3367	I-35	Cab-1	2025-10-23	13	Procambarus sp.		1
3367	I-35	Cab-1	2025-10-23	14	Etheostoma fonticola	20	1
3367	I-35	Cab-1	2025-10-23	14	Procambarus sp.		3
3367	I-35	Cab-1	2025-10-23	15	Etheostoma fonticola	23	1
3367	I-35	Cab-1	2025-10-23	15	Procambarus sp.		1
3367	I-35	Cab-1	2025-10-23	16	Etheostoma fonticola	31	1

3367	I-35	Cab-1	2025-10-23	17	Etheostoma fonticola	22	1
3367	I-35	Cab-1	2025-10-23	17	Etheostoma fonticola	22	1
3367	I-35	Cab-1	2025-10-23	18	Procambarus sp.		1
3368	I-35	Cab-2	2025-10-23	1	Etheostoma fonticola	31	1
3368	I-35	Cab-2	2025-10-23	1	Etheostoma fonticola	32	1
3368	I-35	Cab-2	2025-10-23	1	Etheostoma fonticola	28	1
3368	I-35	Cab-2	2025-10-23	1	Etheostoma fonticola	35	1
3368	I-35	Cab-2	2025-10-23	1	Etheostoma fonticola	9	1
3368	I-35	Cab-2	2025-10-23	1	Etheostoma fonticola	14	1
3368	I-35	Cab-2	2025-10-23	1	Etheostoma fonticola	16	1
3368	I-35	Cab-2	2025-10-23	1	Procambarus sp.		4
3368	I-35	Cab-2	2025-10-23	2	Procambarus sp.		2
3368	I-35	Cab-2	2025-10-23	2	Etheostoma fonticola	14	1
3368	I-35	Cab-2	2025-10-23	2	Etheostoma fonticola	22	1
3368	I-35	Cab-2	2025-10-23	3	Procambarus sp.		4
3368	I-35	Cab-2	2025-10-23	3	Etheostoma fonticola	22	1
3368	I-35	Cab-2	2025-10-23	3	Etheostoma fonticola	19	1
3368	I-35	Cab-2	2025-10-23	4	Etheostoma fonticola	37	1
3368	I-35	Cab-2	2025-10-23	5	Etheostoma fonticola	22	1
3368	I-35	Cab-2	2025-10-23	5	Etheostoma fonticola	30	1
3368	I-35	Cab-2	2025-10-23	5	Procambarus sp.		1
3368	I-35	Cab-2	2025-10-23	6	Etheostoma fonticola	26	1
3368	I-35	Cab-2	2025-10-23	6	Etheostoma fonticola	14	1
3368	I-35	Cab-2	2025-10-23	6	Etheostoma fonticola	14	1
3368	I-35	Cab-2	2025-10-23	7	Procambarus sp.		4
3368	I-35	Cab-2	2025-10-23	7	Etheostoma fonticola	12	1
3368	I-35	Cab-2	2025-10-23	7	Etheostoma fonticola	12	1
3368	I-35	Cab-2	2025-10-23	8	Etheostoma fonticola	17	1
3368	I-35	Cab-2	2025-10-23	9	Procambarus sp.		4
3368	I-35	Cab-2	2025-10-23	9	Etheostoma fonticola	26	1

3368	I-35	Cab-2	2025-10-23	9	Etheostoma fonticola	27	1
3368	I-35	Cab-2	2025-10-23	10	Etheostoma fonticola	14	1
3368	I-35	Cab-2	2025-10-23	10	Procambarus sp.		1
3368	I-35	Cab-2	2025-10-23	11	Etheostoma fonticola	28	1
3368	I-35	Cab-2	2025-10-23	12	No fish collected		
3368	I-35	Cab-2	2025-10-23	13	Procambarus sp.		2
3368	I-35	Cab-2	2025-10-23	14	Etheostoma fonticola	33	1
3368	I-35	Cab-2	2025-10-23	14	Etheostoma fonticola	25	1
3368	I-35	Cab-2	2025-10-23	15	Etheostoma fonticola	12	1
3368	I-35	Cab-2	2025-10-23	15	Etheostoma fonticola	36	1
3368	I-35	Cab-2	2025-10-23	16	Etheostoma fonticola	32	1
3368	I-35	Cab-2	2025-10-23	17	Procambarus sp.		1
3369	I-35	Hydro-1	2025-10-23	1	Percina apristis	82	1
3369	I-35	Hydro-1	2025-10-23	2	Percina apristis	84	1
3369	I-35	Hydro-1	2025-10-23	3	Procambarus sp.		1
3369	I-35	Hydro-1	2025-10-23	4	Palaemonetes sp.		1
3369	I-35	Hydro-1	2025-10-23	5	No fish collected		
3369	I-35	Hydro-1	2025-10-23	6	No fish collected		
3369	I-35	Hydro-1	2025-10-23	7	No fish collected		
3369	I-35	Hydro-1	2025-10-23	8	No fish collected		
3369	I-35	Hydro-1	2025-10-23	9	No fish collected		
3369	I-35	Hydro-1	2025-10-23	10	Procambarus sp.		2
3369	I-35	Hydro-1	2025-10-23	11	No fish collected		
3369	I-35	Hydro-1	2025-10-23	12	No fish collected		
3369	I-35	Hydro-1	2025-10-23	13	No fish collected		
3369	I-35	Hydro-1	2025-10-23	14	No fish collected		
3369	I-35	Hydro-1	2025-10-23	15	No fish collected		
3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	22	1
3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	25	1
3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	22	1

3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	22	1
3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	25	1
3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	22	1
3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	28	1
3370	I-35	Hydro-2	2025-10-23	1	Gambusia sp.	19	1
3370	I-35	Hydro-2	2025-10-23	2	Gambusia sp.	28	1
3370	I-35	Hydro-2	2025-10-23	2	Gambusia sp.	18	1
3370	I-35	Hydro-2	2025-10-23	2	Etheostoma fonticola	23	1
3370	I-35	Hydro-2	2025-10-23	3	Gambusia sp.	25	1
3370	I-35	Hydro-2	2025-10-23	3	Gambusia sp.	23	1
3370	I-35	Hydro-2	2025-10-23	3	Etheostoma fonticola	19	1
3370	I-35	Hydro-2	2025-10-23	3	Procambarus sp.		1
3370	I-35	Hydro-2	2025-10-23	4	No fish collected		
3370	I-35	Hydro-2	2025-10-23	5	Gambusia sp.	31	1
3370	I-35	Hydro-2	2025-10-23	5	Gambusia sp.	32	1
3370	I-35	Hydro-2	2025-10-23	5	Gambusia sp.	15	1
3370	I-35	Hydro-2	2025-10-23	6	No fish collected		
3370	I-35	Hydro-2	2025-10-23	7	No fish collected		
3370	I-35	Hydro-2	2025-10-23	8	No fish collected		
3370	I-35	Hydro-2	2025-10-23	9	Etheostoma fonticola	35	1
3370	I-35	Hydro-2	2025-10-23	10	Percina apristis	52	1
3370	I-35	Hydro-2	2025-10-23	10	Etheostoma fonticola	35	1
3370	I-35	Hydro-2	2025-10-23	10	Etheostoma fonticola	31	1
3370	I-35	Hydro-2	2025-10-23	11	No fish collected		
3370	I-35	Hydro-2	2025-10-23	12	No fish collected		
3370	I-35	Hydro-2	2025-10-23	13	No fish collected		
3370	I-35	Hydro-2	2025-10-23	14	Procambarus sp.		1
3370	I-35	Hydro-2	2025-10-23	15	No fish collected		

APPENDIX H: FOUNTAIN DARTER HABITAT SUITABILITY ANALYTICAL FRAMEWORK

OBJECTIVES

The goal of this analysis was to develop an index to quantify Fountain Darter habitat suitability within biological monitoring study reaches based on aquatic vegetation composition. Specific objectives included: (1) build Habitat Suitability Criteria (HSC) for each vegetation taxa; (2) use HSC to calculate an Overall Habitat Suitability Index (OHSI) based on vegetation community composition mapped at a given study reach during each monitoring event; (3) evaluate the efficacy of OHSI as a measure of Fountain Darter habitat suitability by testing whether Fountain Darter occurrence can be predicted based on OHSI.

METHODS

Habitat Suitability Criteria

HSC are a form of resource selection function (RSF) defined as any function that is proportional to the probability of use by an organism (Manly et al. 1993). HSC were built separately for the Comal and San Marcos river/springs systems using logistic regression based on random-station dip-net data and drop-net data converted to presence/absence. Logistic regression is a form of classification model that uses presence/absence data to predict probabilities based on a set of covariates (Hastie et al. 2009). The response variable for this analysis, probability of darter occurrence, was used to quantify criteria for each vegetation type, ranging from 0 (i.e., not suitable) to 1 (i.e., most suitable) (Figure G1).

OHSI Calculation

To calculate the OHSI for each monitoring event, HSC values for each vegetation strata were first multiplied by the areal coverage of that vegetation strata, and these values were summed across all vegetation strata within each study reach, to generate a Weighted Usable Area (WUA) of vegetation only as follows:

$$\text{Eq. 1} \quad WUA = \sum_{i=1}^N (A_i \times HSC_i)$$

where N is the total number of vegetation types, A_i is the areal coverage of a single vegetation type, and HSC_i is the habitat suitability criteria of that single vegetation type (Yao & Bamal 2014).

This WUA was then divided by the total wetted area within the reach to generate OHSI, as follows:

$$\text{Eq. 2} \quad OHSI = \frac{WUA}{\sum_{i=1}^N (A_i)}$$

In this way, OHSI can also be thought of as the proportion of weighted usable area (Yao & Bamal 2014), ranging from 0 (unsuitable overall habitat) to 1 (most suitable overall habitat). Standardizing by reach size allows for a comparison of habitat quality between reaches of different sizes.

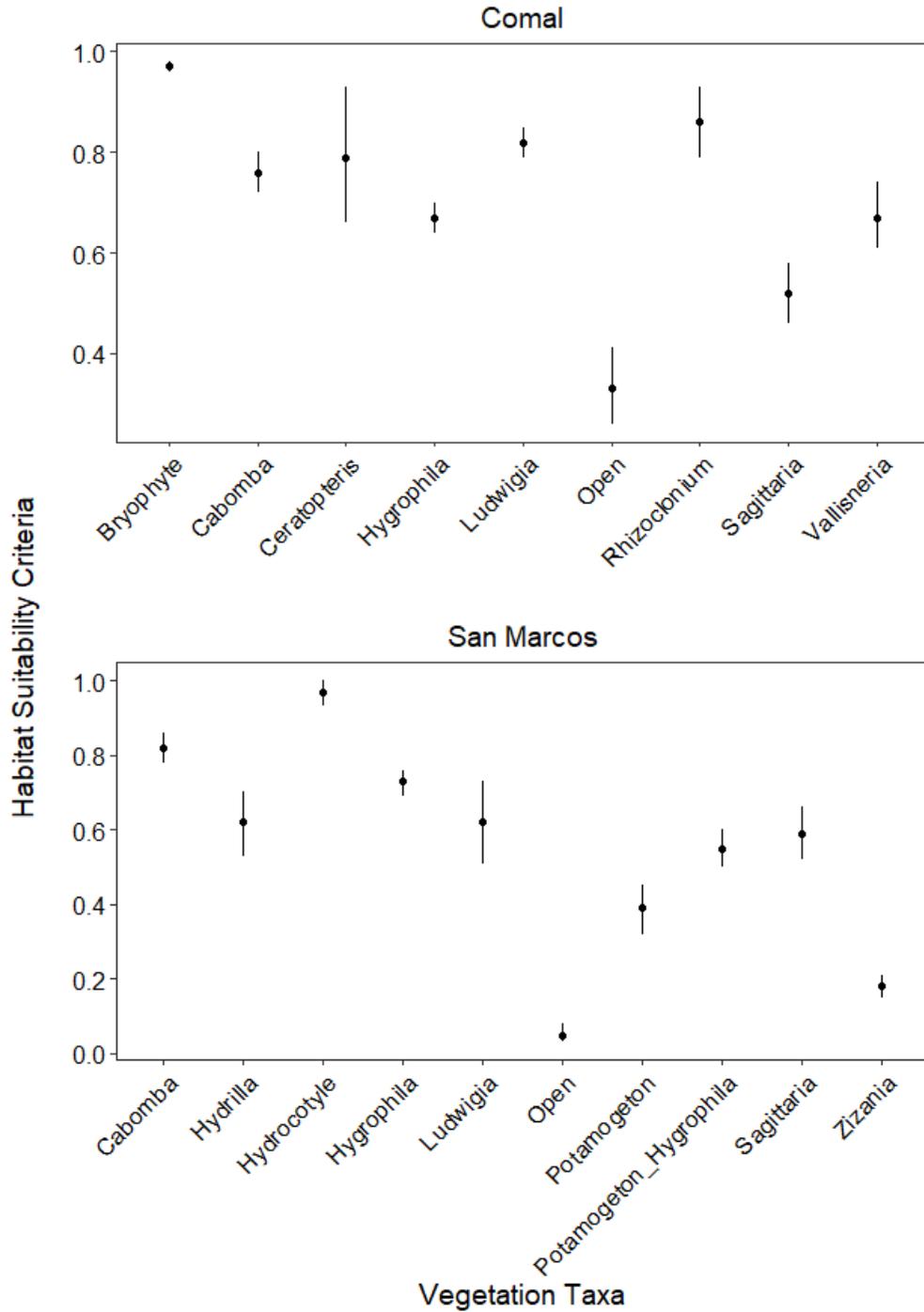


Figure H1. Aquatic vegetation habitat suitability criteria ($\pm 95\%$ CI) built with drop-net and random dip-net datasets using logistic regression.

OHSI Evaluation

OHSI Evaluation Methods

To examine the relationship between OHSI and Fountain Darter population metrics, random-station dip-net data from 2017-2020 was organized in a way that treats each monitoring event per study reach as independent. This results in the response variable quantified as the proportional occurrence of Fountain Darters per reach at a given monitoring event based on the independent variable OHSI.

To predict Fountain Darter occurrence, two modeling approaches that are able to analyze proportions were used, which included: (1) GLM with a binomial distribution and (2) Random Forest Regression (RF). RF is an ensemble learning technique that builds many decision trees to predict a response variable (Breiman et al. 1984). Each decision tree of the “forest” is built by selecting a random subset of the dataset with replacement and a random set of covariates (Liaw & Wiener 2002). RF are considered more advantageous compared to traditional decision tree models and GLM because they correct for overfitting (Breiman 2001) and can provide more accurate predictions with many covariates (Cutler et al. 2007). For this analysis, we built RF models with 500 trees.

GLMs and RFs were built separately for the Comal and San Marcos systems. First, 50% of each dataset was randomly selected to train each model. Second, 5-fold cross validation (CV) was used to independently test the predictive performance of each model with the remaining 50% of the dataset (i.e., test data). Predictive performance was compared among models based on the correlation (R) and deviance (D) between observed and predicted values. Mean CV R \pm standard error (SE) and CV D \pm SE were calculated based on predictions from the 5 CV folds. Models with the highest CV R were considered as the best models for making predictions and elaborated on further in the results.

Lastly, figures were built to display fitted predictions across observed OHSI values to examine if there was a positive relationship between Fountain Darter occurrence and OHSI. Fitted predictions were also presented with a LOWESS smoothed function to visualize if trends of OHSI are linear or nonlinear (Milborrow 2020). In sum, if the models displayed strong predictive power and Fountain Darter occurrence showed a positive relationship with OHSI, then OHSI was considered a useful measurement of habitat suitability for Fountain Darters.

OHSI Evaluation Results

Predictive performance for the Comal models showed that RF (0.81 ± 0.18) predictions were more accurate than GLM (0.62 ± 0.20). San Marcos models were similar, showing better predictive accuracy for RF (0.97 ± 0.02) compared to GLM (0.93 ± 0.06) (Table G1). Comparisons between observed vs. predicted occurrence for the RF 5-fold CV demonstrated lowest predictive accuracy at observed proportions about 0.20 or less for the Comal and San Marcos (Figure G2).

Fitted predictions of occurrence as a function of OHSI showed that occurrence increased with increasing OHSI for the Comal and San Marcos. In the Comal, LOWESS smoothed predictions

exhibited a non-linear asymptotic trend. Occurrence increased about 0.60 to 0.80 when OHSI increased from about 0.65 to 0.75 and remained around 0.80 at OHSI values >0.75. In the San Marcos, LOWESS smoothed predictions exhibited a more linear trend compared to the Comal and occurrence increased from about 0.25 to 0.55 as OHSI increased from 0.25 to 0.60 (Figure G3).

Table H1. Summary model performance statistics for predicting Fountain Darter occurrence based on OHSI. Summary statistics includes deviance (D) and correlation (R) for training data and 5-fold cross-validation (SE).

	Comal		San Marcos	
	GLM	RF	GLM	RF
Training Data				
Deviance	1.10	1.03	1.23	1.20
Correlation	0.48	0.77	0.70	0.89
Cross-Validation				
Deviance	1.12 (0.05)	1.05 (0.06)	1.24 (0.07)	1.21 (0.05)
Correlation	0.62 (0.20)	0.81 (0.18)	0.93 (0.06)	0.97 (0.02)

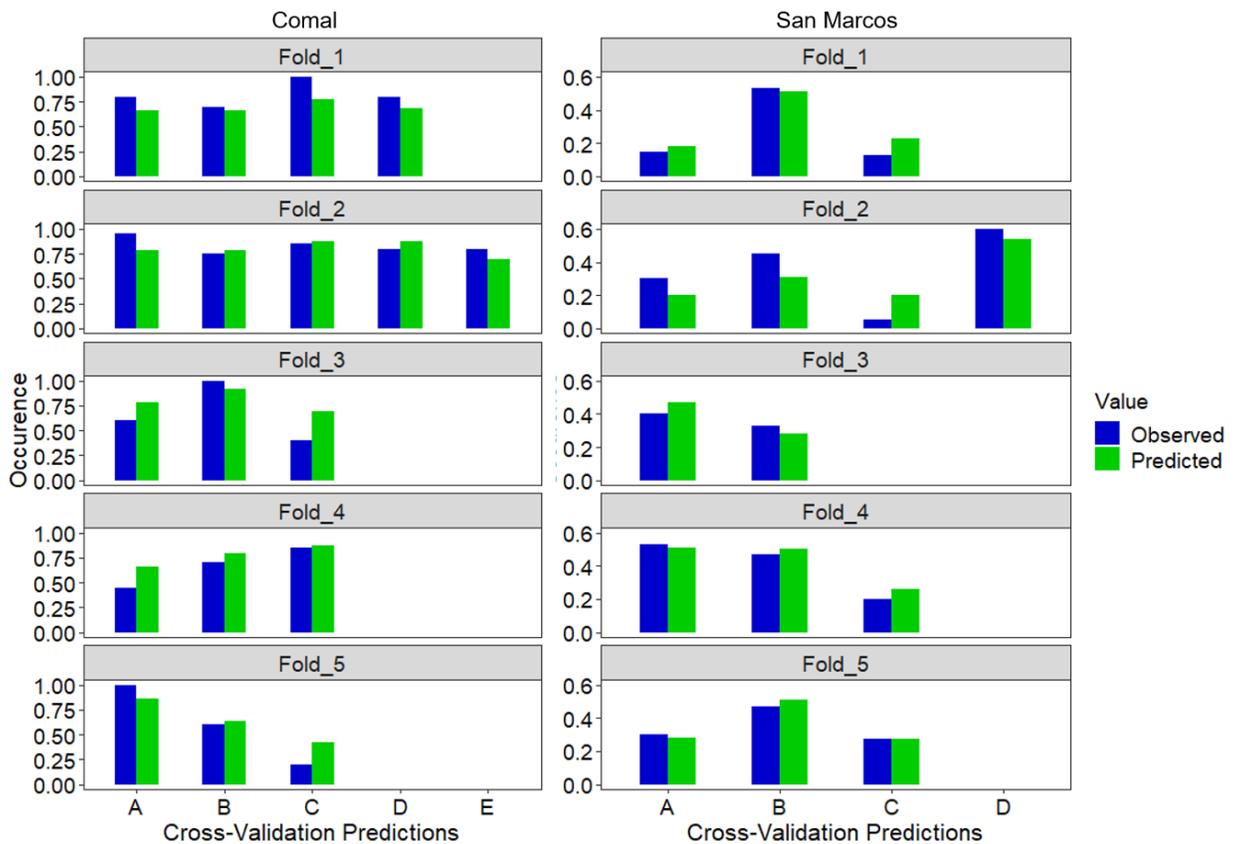


Figure H2. Observed vs. predicted Fountain Darter occurrence in relationship to OHSI from Random Forest 5-fold cross-validation.

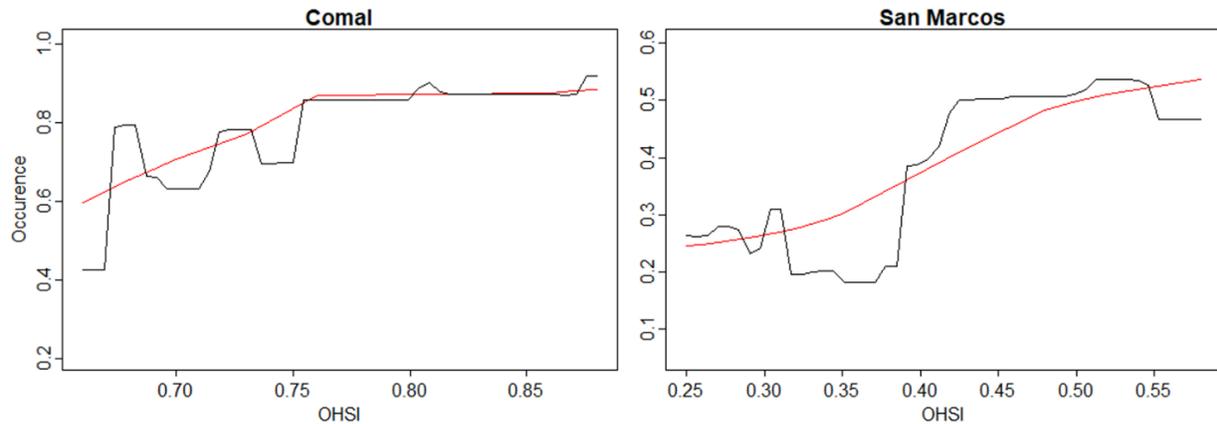


Figure H3. Fitted occurrence predictions for OHSI in the Comal Springs/River and San Marcos River. The red lines are LOWESS smoothed fitted predictions used to visualize nonlinear trends.

OHSI EVALUATION DISCUSSION

Model CV $R > 0.80$ for all RFs demonstrate good model performance and that Fountain Darter occurrence can be accurately predicted based on OHSI. Further, similar performance statistics for training data and test data via cross-validation indicated that the training models were not overfit and can reliably predict independent observations in the future. That being said, predictions were least accurate at observed occurrence values about 0.20 or less, which is likely due to smaller sample sizes in this range. As random station dip-net sampling continues during future biomonitoring activities, predictions at these lower occurrence values will likely improve. Fountain Darter occurrence also increased with increasing OHSI. The positive relationship between occurrence and OHSI and good model performance supports that OHSI is an ecologically relevant index for evaluating Fountain Darter habitat suitability based on vegetation community composition.

In sum, this analysis demonstrated that OHSI based on vegetation-specific HSC and reach-level vegetation composition data can accurately predict Fountain Darter occurrence and is a useful measurement for quantifying habitat suitability. However, additional data collection can assist in addressing multiple limitations of this analysis. Firstly, random station dip-net data with simple random sampling is only available from about 2017-2020, which limits the ability to predict occurrence from historical observations. Further, model performance would likely improve at lower occurrence values as additional data are collected and a more robust dataset is generated. Secondly, this analysis assumed that vegetation alone determines Fountain Darter occurrence. For example, decreased predictive accuracy at lower darter occurrence values may be due to other habitat factors (e.g., depth-flow conditions, river discharge) or biotic factors (e.g., competition, predation) rather than due to smaller sample sizes of lower occurrence values; however, a multi-factor ecological model is beyond the scope of this work. In addition, OHSI can only be assessed for vegetation taxa that have been sampled previously and building HSC for rare vegetation taxa not represented may improve predictions. That being said, RF models demonstrated that occurrence can be predicted accurately without including additional habitat

variables or vegetation types, supporting that this assumption does not hinder this analysis and does not appear to restrict the inference value of OHSI.

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