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Christopher Lee

School children's artwork is used to decorate the front cover and blank filler pages of the *Texas Register*. Teachers throughout the state submit the drawings for students in grades K-12. The drawings dress up the otherwise gray pages of the *Texas Register* and introduce students to this obscure but important facet of state government.

The artwork featured on the front cover is chosen at random. Inside each issue, the artwork is published on what would otherwise be blank pages in the *Texas Register*. These blank pages are caused by the production process used to print the *Texas Register*.

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- (4) receive information from and provide information to other member states;
- (5) process nonresident violators who are residents of other member states;
- (6) establish policies and procedures to implement the terms of the Compact and this section; and
- (7) take other action as necessary to carry out the terms of the Compact.

This agency hereby certifies that the adoption has been reviewed by legal counsel and found to be a valid exercise of the agency's legal authority.

Filed with the Office of the Secretary of State on December 28, 2009.

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Ann Bright
General Counsel
Texas Parks and Wildlife Department
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For further information, please call: (512) 389-4775



CHAPTER 57. FISHERIES

SUBCHAPTER B. MUSSELS AND CLAMS

31 TAC §57.157

The Texas Parks and Wildlife Commission (commission) adopts an amendment to §57.157, concerning Mussels and Clams, without changes to the proposed text as published in the October 2, 2009, issue of the *Texas Register* (34 TexReg 6832).

The amendment alters §57.157(a) to clarify that mussel or clam species listed as threatened or endangered under 31 TAC Chapter 65, Subchapter G, may not be harvested recreationally or commercially. Published elsewhere in this publication is an amendment to §65.175, concerning Threatened Species, which adds 15 species of freshwater mussels to the list of threatened species. Under 31 TAC §65.171(b), no person may take, possess, propagate, transport, import, export, sell, or offer for sale any species of fish or wildlife listed as a threatened species. The amendment is necessary to prevent confusion by clearly stating that the mussel species added to the list of threatened species, in addition to species of clams on the list of threatened species, may not be taken, possessed, sold, or offered for sale.

The Texas Parks and Wildlife Department (department) received one comment opposing adoption of the proposed rule. The commenter stated that rather than prohibiting the take of species, there should be a recreational limit. The department disagrees with the comment and responds that species are listed as threatened when the department determines that the species is threatened with statewide extinction. At that level of sustainability, the prohibition of recreational take is necessary. No changes were made as a result of the comment.

The department received 26 comments supporting adoption of the proposed rule.

The amendment is adopted under Parks and Wildlife Code, Chapter 67, which requires the department to develop and administer management programs to insure the continued ability of

nongame species of fish and wildlife to perpetuate themselves successfully and requires the commission to establish any limits on the taking, possession, propagation, transportation, importation, exportation, sale, or offering for sale of nongame fish or wildlife that the department considers necessary to manage the species.

This agency hereby certifies that the adoption has been reviewed by legal counsel and found to be a valid exercise of the agency's legal authority.

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CHAPTER 65. WILDLIFE

SUBCHAPTER G. THREATENED AND ENDANGERED NONGAME SPECIES

31 TAC §65.175

The Texas Parks and Wildlife Commission (commission) adopts an amendment to §65.175, concerning Threatened Species, without changes to the proposed text as published in the October 2, 2009, issue of the *Texas Register* (34 TexReg 6833). The amendment adds 15 species of freshwater mussels to the list of threatened species.

Mussels are an important component of healthy aquatic ecosystems, both as a food source for many other aquatic and terrestrial organisms, and as an important indicator species. In early life stages, mussels are food sources for a variety of aquatic insects, small fishes, and water birds; as they mature, they become significant food sources for larger fishes, waterfowl, and terrestrial animals. Protection of this resource will preserve and enhance the hunting, fishing, and outdoor recreation opportunities that are part of Texas' heritage.

Freshwater mussel populations have declined throughout North America. They are sensitive to disturbance because they are relatively immobile organisms, sometimes staying in a single spot for their entire lives. They have a complex life cycle that is easily disrupted, causing reproductive failure. Habitat alteration and loss, illegal and over harvesting, and competition from introduced species are some of the factors in their decline. Mussels are extremely sensitive to toxic substances, since they encounter toxins more immediately than most organisms above them in the food chain and at higher concentrations relative to body mass. Minute levels of some types of toxic substances (e.g., ammonia) or chronic environmental stresses such as low oxygen levels or siltation caused by bed scouring can quickly devastate mussel communities, in many cases long before the environmental change is reflected by other aquatic species.

Nationwide, more species of freshwater mussels are listed as threatened and endangered than any other group of animals. Of the nearly 300 mussel species known to have lived in the U.S.,

18 are believed to be extinct, and 60 are currently listed as federally endangered or threatened, including one species occurring in Texas (the Ouachita rock-pocketbook mussel). Texas is home to more than 50 species of freshwater mussels.

The Texas Parks and Wildlife Department (department) has identified 15 species of freshwater mussels that meet the department's criteria for listing as threatened species by virtue of being habitat-limited, known to occur only in specific, limited geographical areas, and by virtue of being rare. As a result, the department has determined that these species are likely to become endangered in the future. The species listed are:

1. False spike (*Quadrula mitchelli*). The false spike is known from only two disjunct populations, one in central Texas and the other in the Rio Grande drainage. Nearly all records of this mussel from the Rio Grande are of subfossil and fossil specimens. The only evidence that the species may still persist in Texas was the discovery of recently dead specimens in the lower San Marcos River in 2000 (Howell 2001b). Several subsequent survey efforts have failed to produce additional evidence of live false spikes in the aforementioned river.

2. Golden orb (*Quadrula aurea*). The golden orb is endemic to the Guadalupe-San Antonio and Nueces-Frio systems. Only seven extant populations of this mussel have been noted from the upper and central Guadalupe River, central San Antonio River, lower San Marcos River, and Lake Corpus Christi (Howells 2006; Burlakova and Karatayev 2008). Surveys conducted over the past 20 years have failed to locate any additional populations of the golden orb. The species' limited distribution makes it particularly susceptible to decline as a result of habitat degradation and reduced flow levels. Four golden orb populations are downstream from a rapidly expanding urban center (San Antonio) with a fifth population dependent on an aquifer impacted by municipal water demands (Howells 2009). NatureServe (an international network of biological inventories and conservation data centers-operating in all 50 U.S. states, Canada, Latin America, and the Caribbean) ranks the golden orb as critically imperiled across its range.

3. Louisiana Pigtoe (*Pleurobema ridellii*). Louisiana Pigtoe ranged from eastern Texas drainages into Louisiana (Howells et al. 1996; Howells et al. 1997; Vidrine 2008). The species is currently listed as a species of concern in Louisiana. Louisiana pigtoe was once more numerous in Texas waters (R.G. Howells unpublished database), but has been exceptionally rare in recent decades. Since the mid-1990s, small numbers of living specimens have been found in the Neches River (Howells 2006), Village Creek, a Neches River tributary in Hardin County (Bordelon and Harrel 2004; Howells 2006; Karatayev and Burlakova 2007a), and the Angelina River (Karatayev and Burlakova 2007a). In all cases, only a few living individuals have been found at any given time; no large populations are known to occur anywhere in Texas (Howells 2009). NatureServe ranks the Louisiana pigtoe as critically imperiled across its range.

4. Mexican fawnsfoot (*Truncilla cognata*). The Mexican fawnsfoot is endemic to the central Rio Grande drainage. Live specimens of this mussel were collected near Del Rio in 1972. Following that discovery, additional living Mexican fawnsfoot would not be observed for another 30 years. In 2003, a single live Mexican fawnsfoot was located near Laredo, followed by one additional specimen in the area some weeks later (Howells 2007), and the eventual collection of five others in 2008 (Burlakova and Karatayev 2008). Mussel surveys and collections throughout the Rio Grande drainage since 1972 have failed to produce any ad-

ditional living specimens, even at sites where the species had been previously recorded. Extensive historical and current environmental modifications along the Rio Grande of Texas and Mexico suggest any surviving populations are likely at risk (Howells 2004). NatureServe ranks the Mexican fawnsfoot as critically imperiled across its range.

5. Salina mucket (*Potamilus metnecktaji*). The Salina mucket, endemic to the central Rio Grande drainage, has potentially been extirpated from its range in New Mexico and Mexico and undergone dramatic declines in Texas (Howells 2009). The Salina mucket has a very limited distribution in Texas with live specimens found only from the southern-most point of Big Bend to the mouth of the Pecos River (Howells 2006). This stretch of river has experienced major silt deposition in recent years and is at risk of dewatering associated with flow restrictions in Mexican rivers upstream. Elsewhere in the Rio Grande and its tributaries, including those in Mexico, only dead shell material has been found in recent decades with no indication of existing populations (Howells 2001a). NatureServe ranks the Salina mucket as critically imperiled across its range.

6. Sandbank pocketbook (*Lampsilis satura*). The sandbank pocketbook is known from southern portions of the Mississippi interior basin and western Gulf drainages of Arkansas, Mississippi, Louisiana, and Texas. The species is considered rare in all states from which it has been recorded. The only significant population of this mussel known to exist in Texas was from the central Neches River. However, a gravel bar where this population was centered has been lost (Howells 2009). Small numbers of individuals remain in the Sabine and tributaries of the Neches (Ford and Nicholson 2006; Howells 2006; Karatayev and Burlakova 2007a, Karatayev and Burlakova 2007b; Randleklev and Kennedy 2008), but abundances at these sites have declined dramatically and there is only limited evidence of successful reproduction. NatureServe ranks the sandbank pocketbook as imperiled across its range.

7. Smooth pimpleback (*Quadrula houstonensis*). This endemic mussel is restricted to the Colorado and Brazos River drainages. In the Colorado River, the smooth pimpleback's distribution has historically been restricted to the Highland Lakes area downriver to Colorado and Wharton Counties. Shell material has been documented in the Brazos basin as far upriver as Shackelford and Young Counties and downstream at least as far as Fort Bend County. Surveys conducted from 1980 to 2006 have noted steep declines in the number of extant populations in both river systems (Howells 2009). Recent surveys of the Colorado River system failed to locate surviving populations of the smooth pimpleback (Howells 2009). At present, the Brazos River drainage hosts the only surviving populations of this freshwater mussel (Karatayev and Burlakova 2007b; Randleklev and Kennedy 2008; Howells 2009). NatureServe ranks the smooth pimpleback as imperiled across its range.

8. Southern hickorynut (*Obovaria jacksoniana*). Distributed across a wide swath of the southern United States, the southern hickorynut is considered rare and a species of conservation concern in seven states (Oesch 1984; Williams et al. 1993; Harris et al. 1997; Parmalee and Bogan 1998; Garner et al. 2004). This mussel species has never been abundant in Texas, with most in-state collections made prior to the mid-1980s. The only recent observation of southern hickorynut in Texas was made in Village Creek in 2001-2002 (Bordelon and Harrel 2004). Subsequent surveys of Village Creek have failed to produce any additional specimens of this species (Howells 2006; Karatayev

and Burlakova 2007a). The southern hickorynut appears to have been lost elsewhere in the state and, if the species still occurs in Texas at all, may only persist at the Village Creek site. NatureServe ranks the southern hickorynut as imperiled across its range.

9. Texas fatmucket (*Lampsilis bracteata*). The Texas fatmucket historically occurred in the Colorado and Guadalupe basins of central Texas (Howells et al. 1996; Howells et al. 1997). Over the past thirty years, a combination of natural and human-induced stressors has led to the dramatic decline of this species in both river systems (Howells 2009). Only six populations of the Texas fatmucket have been documented since 1992 (Howells et al. 2003). Several of these populations have since declined or been eliminated completely (Howells 2006; Burlakova and Karatayev 2008). Recent surveys indicate that only four of the six known Texas fatmucket populations still survive (Howells 2009). The populations that remain are at risk from scouring floods, dewatering, and incompatible land management practices. NatureServe ranks the Texas fatmucket as critically imperiled across its range.

10. Texas fawnsfoot (*Truncilla macrodon*). The Texas fawnsfoot historically occurred in the Colorado and Brazos drainages of central Texas. This species has been considered rare since its formal description in 1859; only 250-300 specimens have ever been collected (Howells 2009). Live Texas fawnsfoot have not been observed in the Colorado River since 1999. A recently discovered population in the Brazos River between Possum Kingdom and the mouth of the Navasota River represents the only known surviving population of this species (Howells 2009). NatureServe ranks the Texas fawnsfoot as imperiled across its range.

11. Texas heelsplitter (*Potamilus amphichaenus*). The Texas heelsplitter is restricted to the Sabine, Neches, and Trinity rivers of Texas. There is historical evidence the species may have once occurred in Louisiana and Oklahoma. In recent years, only a small number of survivors have been found in the upper Sabine River (Howells 2006) and the Angelina River upstream of Sam Rayburn Reservoir (Karatayev and Burlakova 2007a). A significant population did persist in B.A. Steinhagen Reservoir and the Neches River immediately below Town Bluff Dam (Howells 2006; Howells 2007). However, that Texas heelsplitter population may have experienced significant reduction recently due to habitat loss (Howells 2009). A recovering population was found in the Trinity River upstream of Lake Livingston in 1996 (Howells 1997). NatureServe ranks the Texas heelsplitter as critically imperiled across its range.

12. Texas hornshell (*Popenaias popeii*). The Texas hornshell is a regional endemic species known only from discrete sections of the Rio Grand River in Texas and a short segment of the Black River in New Mexico (Howells 2001a; Strenth et al. 2004; Howells 2006; Carman 2007; Burlakova and Karatayev 2008). The discovery of 30 individuals in a Webb County portion of the Rio Grande River in 2003 provides the only evidence of an extant population in Texas (Howells 2004). NatureServe ranks the Texas hornshell as critically imperiled across its range. This mussel is currently listed as a candidate for protection under the U.S. Endangered Species Act.

13. Texas pigtoe (*Fusconaia askewi*). The Texas pigtoe is a regional endemic species limited to a relatively small area in Texas and Louisiana. The species has experienced a drop in numbers and a declining area of occupancy over the past decade (Howells 2009). Populations of the Texas pigtoe documented since

1990 include the Trinity River above Lake Livingston, a tributary of the West Branch San Jacinto River, and the Sabine River above Toledo Bend Reservoir. It was also reported alive in the Angelina River in 1984 and Neches River in 1986, but has not been observed in either location since (Howells et al., 1996). NatureServe ranks the Texas pigtoe as imperiled across its range.

14. Texas pimpleback (*Quadrula petrina*). The Texas pimpleback is an endemic species confined to the Colorado and Guadalupe drainages. Over the past few decades, populations of this species have suffered steep declines. Live Texas pimpleback have been observed at only five sites since 1992 (Howells 2009). The species has apparently been eliminated from a tributary of the Colorado River in Runnels County and the main channel of the Colorado River upstream of Lake Buchanan. The only confirmed significant population in the Concho River persists, but has been badly reduced by dewatering (Howells 2009). NatureServe ranks the Texas pimpleback as imperiled across its range.

15. Triangle pigtoe (*Fusconaia lananensis*). The triangle pigtoe is endemic to the Neches and San Jacinto Rivers and Village Creek in eastern Texas (Howells et al., 1996). It has been extirpated from Lanana Creek in Nacogdoches County. Extant triangle pigtoe populations are limited and the ecological security of most occupied sites is marginal. NatureServe ranks the triangle pigtoe as critically imperiled across its range.

The rule will function by prohibiting the take of 15 species of freshwater mussels.

The department received two comments opposing adoption of the proposed rule.

One commenter provided a specific rationale for opposing adoption. The commenter stated that species unable to adapt to changes in the environment should not be protected. The department disagrees with the comment and responds that wildlife diversity is a crucial part of maintaining healthy ecosystems that support all life. In addition, the department is statutorily required to ensure the continued ability of nongame species of fish and wildlife to perpetuate themselves successfully. No changes were made as a result of the comment.

The department received 28 comments supporting adoption of the proposed rule.

The Freshwater Mollusk Conservation Society commented in support of adoption of the proposed rule.

No groups or associations commented in opposition to adoption of the proposed rule.

The amendment is adopted under Parks and Wildlife Code, Chapter 67, which requires the department to develop and administer management programs to insure the continued ability of nongame species of fish and wildlife to perpetuate themselves successfully and requires the commission to establish any limits on the taking, possession, propagation, transportation, importation, exportation, sale, or offering for sale of nongame fish or wildlife that the department considers necessary to manage the species.

This agency hereby certifies that the adoption has been reviewed by legal counsel and found to be a valid exercise of the agency's legal authority.

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SUBCHAPTER T. DEER BREEDER PERMITS

The Texas Parks and Wildlife Commission (commission) adopts the repeal of §65.611 and new §65.611, concerning Deer Breeder Permits, without changes to the proposed text as published in the October 2, 2009, issue of the *Texas Register* (34 TexReg 6836).

The repeal and new section are necessary to address Texas Parks and Wildlife Department (department) concerns about wildlife diseases that could potentially be transmitted to wildlife in Texas by deer originating from out-of-state sources.

New §65.611(a) requires that deer obtained from the wild under the authority of a permit or letter of authority issued pursuant to Parks and Wildlife Code, Chapter 43, Subchapter C, E, or R not be commingled with deer held in a permitted deer breeding facility. The new subsection is identical to former subsection (a) and is necessary because other permits issued by the department authorize the temporary capture of deer from the wild for various purposes, while a deer breeder permit authorizes only transfers of breeder deer between deer breeders or release to the wild.

New §65.611(b) makes it an offense for a person to place or hold breeder deer in captivity at any place or on any property other than property for which a deer breeder's permit or other lawful permit is issued, and would provide an exception for the transportation and temporary holding of breeder deer for breeding, nursing, or veterinary purposes. The new subsection is identical to former subsection (b) and is necessary to prevent the commingling of breeder deer with wild deer, except for release or sale from facilities meeting disease management criteria, or on a temporary basis for legitimate purposes such as breeding at another facility, nursing, or veterinary care.

New §65.611(c) prohibits the holding of breeder deer in a trailer or other vehicle of any type except for the purpose of immediate transportation from one location to another. The new subsection is identical to former subsection (c) and is necessary to ensure that deer are humanely treated.

New §65.611(d) stipulates that possession of a deer breeder's permit is not a defense to prosecution under any statute prohibiting abuse of animals. The new subsection is identical to former subsection (d) and is necessary to ensure that deer are humanely treated.

New §65.611(e) prohibits deer breeders from exceeding the number of breeder deer allowable for the permitted facility, as specified by the department on the deer breeder's permit. The new subsection is identical to former subsection (e) and is necessary because only by establishing the number of deer that may be lawfully possessed in a given facility is the department able to prove cases in which people have obtained deer unlawfully.

New §65.611(f) clearly and unambiguously states that the importation of deer or attempted importation of deer into Texas from

an out-of-state source is an offense. The new section is necessary to eliminate confusion surrounding the basis for the former rule, which prohibited the possession of deer obtained from an out-of-state source.

The provisions of former subsection (f) that prohibit the possession of deer obtained from an out-of-state source and create an exception for deer obtained prior to June 21, 2005, are retained. The provision prohibiting the possession of deer obtained from an out-of-state source is necessary to prevent the introduction of disease to wild populations in Texas. The provision creating an exception for deer obtained prior to June 21, 2005 is necessary because June 21, 2005 is the effective date of the provision prohibiting the possession of deer obtained from an out-of-state source and the department did not want the rule to be retroactive.

Former §65.611(f) was promulgated in 2005 in response to concerns about the potential introduction of Chronic Wasting Disease (CWD) to susceptible native ungulate populations. Although intended at the time to address CWD, the rule for all practical purposes had the additional effect of protecting wildlife and livestock in Texas from all diseases that affect, are carried by, or are transmissible through white-tailed or mule deer. The new subsection makes it clear that the act of importing or attempting to import white-tailed deer or mule deer is an offense, which is necessary to protect native wildlife populations from various disease threats.

Since 2005, the department has become aware of additional potential epidemiological threats to native wildlife, particularly bluetongue virus (BTV), Epizootic Hemorrhagic Disease Virus (EHDV), Malignant Catarrhal Fever (MCF), and Adenovirus Hemorrhagic Disease (AHD), all of which are viruses that affect deer or can be transmitted by deer to other wildlife or livestock.

EHDV and BTV are closely related viruses, transmitted by biting insects, which cause hemorrhagic diseases in ruminant animals such as sheep, cattle, and deer. Hemorrhagic diseases have been implicated in large-scale mortality in white-tailed deer, mule deer, and pronghorn antelope (Thorne, 1982; Gibbs and Greiner, 1989). Mortality rates for deer with EHDV or BTV can be as high as 50%, according to the Texas Veterinary Medical Diagnostic Laboratory. Studies by the Auburn University Veterinary Diagnostic Laboratory have documented the presence in Alabama of the five strains (serotypes) of BTV known to occur in North America (serotypes 2, 10, 11, 13, and 17). The presence of these serotypes raises the concern that the epidemiology of these viruses in North America may be changing and could result in more extensive disease in U.S. livestock and wildlife.

Malignant catarrhal fever (MCF) is a frequently fatal disease caused by one of several herpesviruses. White-tailed deer are extremely susceptible to MCF, which has been detected in populations of captive cervids in the north-central United States.

Adenovirus hemorrhagic disease (AHD) was identified in California in 1993 and caused high mortality in mule deer.

The emergence of numerous disease threats points to the need for the department to be proactive in protecting the state's wildlife resources and the multi-billion-dollar hunting and ecotourism industries that depend upon them. The department strongly believes that prohibiting the entry of deer from other states is a critically important step in minimizing to the greatest extent possible the potential biological and economic impacts that a disease outbreak could cause in Texas.