

TABLE 1—WASTES EXCLUDED FROM NON-SPECIFIC SOURCES—Continued

Facility	Address	Waste description
		<p>5. <i>Reopener Language</i>—(A) If, anytime after disposal of the delisted waste, Owosso possesses or is otherwise made aware of any data (including but not limited to leachate data or groundwater monitoring data) relevant to the delisted waste indicating that any constituent is at a concentration in the leachate higher than the specified delisting concentration, or is in the groundwater at a concentration higher than the maximum allowable groundwater concentration in paragraph (1), then Owosso must report such data, in writing, to the Regional Administrator within 10 days of first possessing or being made aware of that data. (B) Based on the information described in paragraph (A) and any other information received from any source, the Regional Administrator will make a preliminary determination as to whether the reported information requires Agency action to protect human health or the environment. Further action may include suspending, or revoking the exclusion, or other appropriate response necessary to protect human health and the environment. (C) If the Regional Administrator determines that the reported information does require Agency action, the Regional Administrator will notify Owosso in writing of the actions the Regional Administrator believes are necessary to protect human health and the environment. The notice shall include a statement of the proposed action and a statement providing Owosso with an opportunity to present information as to why the proposed Agency action is not necessary or to suggest an alternative action. Owosso shall have 30 days from the date of the Regional Administrator's notice to present the information. (D) If after 30 days Owosso presents no further information or after a review of any submitted information, the Regional Administrator will issue a final written determination describing the Agency actions that are necessary to protect human health or the environment. Any required action described in the Regional Administrator's determination shall become effective immediately, unless the Regional Administrator provides otherwise.</p>
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**DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 17**

[Docket No. FWS-R2-ES-2009-0060; MO 92210-0-0008]

**Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List *Cirsium wrightii* (Wright's Marsh Thistle) as Endangered or Threatened****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Notice of 12-month petition finding.

**SUMMARY:** We, the U.S. Fish and Wildlife Service, announce a 12-month finding on a petition to list *Cirsium wrightii* (Wright's marsh thistle) as endangered or threatened and to designate critical habitat under the Endangered Species Act of 1973, as amended. After review of all available scientific and commercial information, we find that listing *C. wrightii* as endangered or threatened throughout its range is warranted. Currently, however, listing of *C. wrightii* is precluded by higher priority actions to amend the Lists of Endangered and Threatened

Wildlife and Plants. Upon publication of this 12-month petition finding, we will add *C. wrightii* to our candidate species list. We will develop a proposed rule to list *C. wrightii* as our priorities allow. We will make any determination on critical habitat during development of the proposed rule. In the interim period, we will address the status of the candidate taxon through our annual Candidate Notice of Review.

**DATES:** The finding announced in this document was made on November 4, 2010.

**ADDRESSES:** This finding is available on the Internet at <http://www.regulations.gov> at Docket Number FWS-R2-ES-2009-0060. Supporting this finding is available for public inspection, by appointment, during normal business hours by contacting the U.S. Fish and Wildlife Service, New Mexico Ecological Services Office, 2105 Osuna NE, Albuquerque, NM 87113. Please submit any new information, materials, comments, or questions concerning this finding to the above address.

**FOR FURTHER INFORMATION CONTACT:** Wally "J" Murphy, Field Supervisor, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office (see **ADDRESSES**); by telephone at 505-346-4781; or by facsimile at 505-346-2542. If you use a telecommunications device for the deaf (TDD), please call the

Federal Information Relay Service (FIRS) at 800-877-8339.

**SUPPLEMENTARY INFORMATION:****Background**

Section 4(b)(3)(B) of the Endangered Species Act (Act) (16 U.S.C. 1531 *et seq.*) requires that, for any petition to revise the List of Endangered and Threatened Wildlife that contains substantial scientific and commercial information that listing may be warranted, we make a finding within 12 months of the date of receipt of the petition on whether the petitioned action is: (a) Not warranted, (b) warranted, or (c) warranted, but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether species are threatened or endangered, and expeditious progress is being made to add or remove qualified species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Section 4(b)(3)(C) of the Act requires that we treat a petition for which the requested action is found to be warranted but precluded as though resubmitted on the date of such finding, that is, requiring a subsequent finding to be made within 12 months. We must publish these findings in the **Federal Register**.

**Previous Federal Actions**

On October 15, 2008, we received a petition from the WildEarth Guardians, dated October 9, 2008, requesting that

we list *Cirsium wrightii* (Wright's marsh thistle) as endangered or threatened under the Act. Additionally, the petitioner requested that critical habitat be designated concurrent with listing of *C. wrightii*. In a November 26, 2008, letter to the petitioner, we responded that we had reviewed the petition and determined that an emergency listing was not necessary. We also stated that, to the maximum extent practicable, we would address their petition within 90 days.

The petition asserted that water diversion, habitat loss and degradation through current livestock grazing, inadequate regulatory mechanisms, weed control, nonnative species, drought, and climate change threaten *C. wrightii*. During our review of the petition, we found that the majority of information cited in the petition was not readily available to us. Therefore, on December 18, 2008, we requested that the petitioner provide references. On February 13, 2009, the petitioner provided additional references.

On September 10, 2009, we published a 90-day finding in the **Federal Register** that the petition presented substantial information that listing *C. wrightii* may be warranted. That document also initiated a status review of the subspecies (74 FR 46542). On February 11, 2010, WildEarth Guardians filed suit against the Service for failure to issue a 12-month finding on the petition (*WildEarth Guardians v. Salazar*, No. 10-cv-00122 BRB-DJS (D.N.M.)). Pursuant to a stipulated settlement agreement, the 12-month finding is due to the **Federal Register** by October 31, 2010. This notice constitutes our 12-month finding for the petition to list *C. wrightii* as threatened or endangered with critical habitat.

#### Species Information

*Cirsium wrightii* is a biennial (a plant completing development in 2 years, flowering its second year) or a weak monocarpic perennial (a plant that flowers, sets seed, then dies), in the sunflower family (Asteraceae). The plant is prickly with short black spines and a 3- to 8-foot (ft) (0.9- to 2.4-meter (m)) single stalk covered with succulent leaves (Sivinski 1996, p. 1; Arizona Game and Fish Department (AGFD) 2001, p. 1). Numerous slender flowering branches emerge from the stalk, starting about one-third up the length of the plant. Branches are terminated by one or a few small flowering heads, which have numerous slender phyllaries (a modified leaf associated with the flower) (Sivinski 1996, p. 1). Flowers are white to pale pink in areas of the Sacramento Mountains of New Mexico,

but are vivid pink in the Santa Rosa, New Mexico, locality (Sivinski 1996, p. 1). In New Mexico, the species occurs in wet, alkaline soils in spring seeps and marshy edges of streams and ponds between 3,450 and 7,850 ft (1,152 and 2,393 m) in elevation (Sivinski 1996, p. 1; 2005a, pp. 3–4; Worthington 2002a).

*Cirsium wrightii* is a wetland obligate (occurs only in water-saturated soils) that was originally collected in 1851 at San Bernardino Cienega, Cochise County, Arizona (Gray 1853, p. 101; Smithsonian 1849, p. 1). Historically, the species was found in Arizona, New Mexico, and Chihuahua, Mexico (Gray 1853, p. 101; Coulter 1891, p. 244; Kearney and Peebles 1951, p. 952; Correll and Johnston 1970, p. 1719; U.S. Fish and Wildlife Service (Service) 1995, p. 1). Recently it was learned that an occurrence of another sunflower, *Cirsium texanum* (Texas thistle), in Presidio County, Texas, had been incorrectly identified as *C. wrightii* (Poole 2010, p. 1). All of the previously presumed specimens of *C. wrightii* from Texas have now been correctly identified as *Cirsium texanum* (Texas thistle), rather than *C. wrightii* (Sivinski 1994a, p. 1; 1996, p. 2; 2006a, p. 1; Worthington 2002a, p. 4). These species are easily confused on herbarium sheets (Sivinski 1996, p. 2). However, in the field, *C. wrightii* differs from *C. texanum* in physical appearance (New Mexico Rare Plant Technical Council (NMRPTC) 2009, p. 1). The presumed Texas specimens of *C. wrightii* that were previously identified from herbarium sheets, rather than field identification, have been found to be *C. texanum* (Sivinski 1996, p. 2).

In the New Mexico portion of the species' range, *Cirsium wrightii* appears to be an obligate of seeps, springs, and wetlands that have saturated soils with surface or subsurface water flow (Sivinski 1996; Service 1998; Worthington 2002a, p. 2; NMRPTC 2009). Plants commonly found in areas inhabited by this species include *Scirpus* spp. (bulrush), *Salix* spp. (willow), *Baccharis glutinosa* (seepwillow), *Helianthus paradoxus* (Pecos sunflower), *Juncus* spp. (rush), and *Typha* spp. (cattail) (Sivinski 1996, pp. 2–5; Sivinski and Bleakly 2004, p. 2; Worthington 2002a, pp. 1–2).

#### Distribution and Range

*Cirsium wrightii* currently occurs in New Mexico; however, it has been extirpated from all previously known locations in Arizona (Sivinski 1996, pp. 1, 4, 9, 2006a, 2009a, p. 1; Worthington 2002a, p. 4), and was misidentified and likely not ever present in Texas (Poole 1992; 2010; Sivinski 1996, p. 2). The

status of the species in Mexico is uncertain, with few verified collections of the plant. Numerous surveys of potential habitat have been conducted over the years with few new localities documented (e.g., Poole 1992, 2010; Sivinski 1994, 1996, 2005, 2009a; Worthington 2002a).

*Cirsium wrightii* is ranked by NatureServe as a G2 (imperiled) species. It was changed from G3 (vulnerable) to G2 in 2003 (NatureServe 2009, p. 1). Similarly, its National Status ranking for the United States is N2 (imperiled due to a restricted range and very few populations) (NatureServe 2009, p. 2). Though these rankings do not provide any regulatory protections, the NatureServe designations do serve to notify the public of the species' status.

In New Mexico, there are eight general confirmed locations of *Cirsium wrightii*: Santa Rosa, Guadalupe County; Bitter Lake National Wildlife Refuge (BLNWR), Chaves County; Blue Spring, Eddy County; La Luz Canyon, Carr Canyon, Silver Springs, and Tularosa Creek, Otero County; and Alamosa Creek, Socorro County (Bridge 2001, p. 1; Sivinski and Bleakly 2004, p. 2; NMRPTC 2009, p. 1; Sivinski 1994, p. 1; 1996, p. 2; 2005, p. 1; 2005a, pp. 3–5; 2009, 2009a; Service 1998, p. 1; Worthington 2002, p. 1; 2002a, pp. 1–3). Four of the eight localities are clustered within about 10 miles (mi) (16 kilometers (km)) of each other on the west slope of the Sacramento Mountains, Otero County, whereas the remaining four localities are widely disjunct, separated from the Sacramento localities by about 75 to 140 mi (120 to 225 km) and from each other by about 75 to 215 mi (120 to 345 km). In the Sacramento Mountains, two of these four localities occur on the Lincoln National Forest, one locality is on private land and the remaining locality is on the Mescalero Apache Reservation. In the Pecos River Valley, one locality is on public lands on the BLNWR, Chaves County; one is on private land near the Black River, Eddy County; and one is in the vicinity of Santa Rosa, Guadalupe County, on private, municipal, and State lands. The remaining locality is on private land on Alamosa Creek, Socorro County. Localities vary in relative population size from less than 20 individuals covering only about 50 square feet (ft<sup>2</sup>) ((5 square meters (m<sup>2</sup>)) at the Silver Springs locality, to several thousand individuals on BLNWR.

Within New Mexico, historic localities from the City of Roswell land, Chaves County, Lake Valley in Sierra County, and La Luz and Haynes Canyons in Otero County are extirpated

(NMRPTC 2009, p. 2; Sivinski 2005, p. 1; 2005a p. 4; 2009a, p. 2). Finally, a *Cirsium* species at Rattlesnake Springs, Eddy County, is thought to be a hybrid between *C. wrightii* and *C. texanum* (NMRPTC 2009, p. 2). This population blooms in May rather than the typical season of *C. wrightii* from August to October (NMRPTC 2009, p. 2).

We are unaware of specific long-term monitoring data on absolute abundance estimates for *Cirsium wrightii* in New Mexico, but have estimates of relative abundance for most extant localities (see also Sivinski 1996, 2005a, 2006a, 2009, 2009a). In 1996, Sivinski completed a status assessment of *C. wrightii* in New Mexico (Sivinski 1996). He subsequently continued to survey and monitor *C. wrightii* localities. Worthington (2002a) conducted surveys at 12 sites that contained suitable habitat in Karr Canyon, the Rio Penasco drainage, and in the vicinity of Sacramento Lake in the Sacramento Mountains on U.S. Forest Service (Forest Service) land in 2002. Moreover, he surveyed additional springs, but found most springs were capped or captured for municipal use by the City of Alamogordo (Worthington 2002a, p. 3). No new *C. wrightii* populations were found, although one possible new locality with plants that lacked the characteristic black tips and had different looking leaves was noted (Worthington 2002). However, the locality was not photographed, collected, or verified and the accuracy of its identification is unknown.

In Arizona, the Service has similarly contracted surveys of potential *Cirsium wrightii* habitat to verify whether any populations are extant. These will be completed by October 2010. Below, we present information on all of the known historic and extant localities of *C. wrightii* rangewide, including those that have been extirpated.

#### New Mexico

##### Tularosa Creek

The Tularosa Creek, Otero County, population of *Cirsium wrightii* occurs on private land and the Mescalero Apache Reservation. This population has significantly declined since 1995, from an estimated several thousand individual plants along 3.5 mi (5.6 km) of nearly continuous occupied marsh and wet meadows, to four scattered occupied locales of less than 50 individual flowering plants total along the same stretch in 2009 (Sivinski 1996, p. 3; 2009a, p. 2). In 1995, this was the most extensive population in the Sacramento Mountains, but it has become drier and dominated by the

invasive plant *Phragmites australis* (common reed) since the 1995 survey (Sivinski 1996, p. 3; 2009a, p. 2). This population likely includes additional small adjacent localities of scattered individual plants on the Mescalero Apache Reservation, but we were unable to survey these Tribal lands (e.g., see Bridge 2001; Worthington 2002a). Moreover, the possible new locality found by Worthington (2002) occurs in the area.

##### La Luz Canyon

The small La Luz Canyon population of *Cirsium wrightii* that occurs within about 540 ft<sup>2</sup> (50 m<sup>2</sup>) of spring habitat on Forest Service lands was stable at an estimated 50 plants both in 1995 and 2005 (Sivinski 1996, p. 3; 2005a, p. 4). However, an adjacent small population of 10 plants in the same general area on private land 3 mi (5.8 km) east of La Luz Canyon was extirpated between 1995 and 2005, most likely from a severe scouring flood and alteration of the spring hydrology that led to the drying of habitat (Sivinski 2005a, p. 4; 2009a, p. 2).

##### Karr Canyon

The Karr Canyon/Haynes Creek population of *Cirsium wrightii* previously included a cluster of a hundred plants within about 1000 ft<sup>2</sup> (100 m<sup>2</sup>) of spring habitat within a highway right-of-way that was stable between 1995 and 2005 (Sivinski 1996, p. 2, 2005a, p. 4). Nevertheless, a small population of a few dozen mature plants in the same general area on private land was extirpated between 1995 and 2005 and replaced by *Phragmites australis* (Sivinski 1996, p. 2, 2005a, p. 4; 2009a, p. 2).

##### Silver Springs Canyon

The small Silver Springs Canyon population of *Cirsium wrightii* occurs on Forest Service land in a wet meadow and was estimated at 16 mature plants in 2002 (Worthington 2002, p. 4; 2002a, p. 15). The population was observed in July 2010 and appears to be approximately the same size (Service 2010b, p. 1). This population is growing within a seep and is adjacent to *C. vinaceum* (Sacramento Mountains thistle) (Worthington 2002, p. 4).

##### Bitter Lake National Wildlife Refuge

A large population of *Cirsium wrightii* was found at BLNWR in 1998 and is associated with cienagas (wet meadows) and marshes in Units 3, 5, and 6 of the refuge (Service 1998, p. 1; 2010, p. 1). All known populations of *C. wrightii* on BLNWR grow within designated critical habitat of *Helianthus paradoxus*

(Service 2010a, p. 6). When *C. wrightii* was discovered on BLNWR, the population was estimated between 1,680 and 2,130 flowering plants (Service 1998, p. 1; 1999, p. 25). Sivinski (2005a, p. 3) found there was no change in this population's distribution and abundance between 1999 and 2005. In 2009, the population was estimated to be thousands of individuals, the largest known population of *C. wrightii* (Sivinski 2009a, p. 2).

##### Roswell

*Cirsium wrightii* historically occurred in North Spring, at the Roswell Country Club, Roswell, New Mexico (Sivinski 1996, p. 4). However, the population has been extirpated following the alteration and loss of all vegetation, including *C. wrightii*, as a result of the enclosure of North Spring with bricks and cement (Sivinski 1996, p. 4; New Mexico Department of Game and Fish (NMDGF) 2005a, p. 18). Sivinski surveyed most of the springs in the vicinity of Roswell in 1995 looking for *C. wrightii* populations (Sivinski 1996, p. 4). All but one spring had been capped and diverted for domestic water, and no extant or new populations were found (Sivinski 1996, p. 4).

##### Santa Rosa Wetlands

The Santa Rosa area is a zone of karst topography (an area of erosive limestone), with numerous sinkhole lakes and artesian springs (ground water that is under pressure) within a 6-mi (9.7-km) diameter circular depression. The localities of *C. wrightii* are scattered within some of the marshes, spring seeps, and various sinkhole lakes, with flowering plants generally rare and occurring throughout 4 sections spread out over 4 square miles (mi<sup>2</sup>) (10 square kilometers (km<sup>2</sup>)) on a mixture of State, private, and municipal lands, but the total area occupied in this locality is less than 5 acres (ac) (2 hectare (ha)) (Sivinski 1996, p. 4; Sivinski and Bleakly 2004, pp. 1, 3; Service 2010c, pp. 1–2). For example, the 116-ac (47-ha) Blue Hole Cienaga locality, owned by the State of New Mexico, is part of the overall population and contains sparse occurrences (i.e., not continuous in distribution) of *C. wrightii* along a spring-fed creek and an adjacent seep (Sivinski and Bleakly 2004; Service 2010c). The other known localities in the area include El Rito Creek, private lands, ponds at a no-longer-used fish hatchery, Bass Lake, and Perch Lake (a large sinkhole that is partially developed for fishing and picnicking) (Sivinski 1996; 2005a; 2010a; Sivinski and Bleakly 2004). Most of the

municipal habitats are small, but have been filled and developed for recreation. This active filling of wetlands has led to the loss of *C. wrightii* plants in recent years (Service 2010c). These localities support perhaps a few hundred *C. wrightii*, but the remaining localities are smaller, isolated occurrences (Sivinski 1996, p. 6, 2009a; 2010a, p. 1; Sivinski and Bleakly 2004, p. 3). Between 1995 and 2005, the overall Santa Rosa population was thought to be stable, estimated at several thousand plants (Sivinski 1996, p. 4; 2005a, p. 3).

#### Blue Spring

A new population of *Cirsium wrightii* was discovered in 2009 at Blue Spring, Eddy County, New Mexico (Sivinski 2009). This population was estimated at several hundred to a few thousand plants and occupies about 1 mi (1.6 km) of riparian habitat (Sivinski 2009, p. 1). Water flow at Blue Spring is generally perennial along the 2.5-mi (4-km) run that flows into the Black River (a tributary of the Pecos) near Black River Village, New Mexico (NMDGF 2007, p. 15). We have no other information on this locality, as it was just discovered in 2009.

#### Alamosa Springs

Another population of *Cirsium wrightii* was discovered in 2005 at Alamosa Springs, Socorro County, New Mexico (Sivinski 2005, p. 1). There were an estimated 500–1,000 flowering adults and rosettes confined to a small, spring-fed wetland within the Alamosa Creek Valley (a tributary of the Rio Grande), but none of the plants occurred along Alamosa Creek (Sivinski 2005, p. 1; 2010a, pp. 1–2). The remaining springs in the Alamosa Creek Valley are on private land and have not been surveyed.

#### Lake Valley

A population of *Cirsium wrightii* was historically located within Lake Valley, Sierra County, New Mexico, but is considered extirpated (Sivinski 2005). This site is now an abandoned mining settlement, but was historically a series of marshes and cienagas. The area was diked, channeled, and drained in the early 1900s and converted to row-crop agriculture (Sivinski 2005, p. 1). There is no longer suitable habitat for *C. wrightii* within the valley (Sivinski 2005, p. 1).

#### Arizona

##### San Bernardino Cienaga

The population at the type locality (the place where the species was first found) from San Bernardino Cienaga, Arizona, has not been found again since

it was originally collected in 1851, although the area was surveyed in 2006 by The Nature Conservancy (Sivinski 2006a, p. 1; 2009a, p. 1). The species is likely extirpated from the State (ADGF 2001, p. 1; Sivinski 1996, p. 4; 2009a, p. 1; Service 2009a, p. 1).

#### Texas

We found that *Cirsium* specimens from Texas have been confused because of the difficulty in distinguishing *Cirsium wrightii* and *C. texanum* from herbarium sheets (Sivinski 1994, p. 1; 1994a, p. 1; Sivinski 2006a, p. 1). All of the collections from herbariums and references identifying *C. wrightii* localities in Texas are in error (Coulter 1881, p. 244; Correll and Johnson 1970, p. 1719; Kearney and Peebles 1951, p. 952; Martin and Hutchins 1981, p. 2002; Sivinski 1994, p. 1; 1996, p. 5; Texas A&M University 1975, p. 89). Furthermore, the presumed location from Presidio, Texas, that we identified in the 90-day finding (74 FR 46544), is not *C. wrightii*, but most likely an undescribed species from northern Mexico (Poole 2010, p. 1).

Poole (1992) evaluated 74 cienagas in Texas and conducted botanical surveys at 33 of the locations within the highest potential habitat (*i.e.*, springs and wetlands) for the *Helianthus paradoxus*, which has similar habitat requirements and sometimes overlaps with *C. wrightii*. No *C. wrightii* locations were found during these extensive botanical surveys (Poole 1992). Similarly, we reviewed information from and contacted botanists who have surveyed the Diamond Y Preserve, Pecos County, Texas, owned by The Nature Conservancy. This preserve shares some of the same habitat characteristics, and many of the imperiled species, found on BLNWR, including Pecos assiminea (*Assiminea pecos*), Pecos gambusia (*Gambusia nobilis*), and *Helianthus paradoxus* (Service 2005, pp. 4, 8; 2007, p. 10; Poole 2010, p. 1). We found that Diamond Y has been thoroughly surveyed, and it does not appear that *C. wrightii* occurs on the preserve. Because we do not have any verified historic collections or known extant populations from any locations in Texas (Poole 2010, p. 1; 2010a, p. 1), we conclude that *C. wrightii* has never been present within the State.

#### Mexico

We have not been able to obtain any recent information on *Cirsium wrightii* in Mexico. In fact, we have located only three herbarium specimens that were collected in Mexico. One specimen was collected in 1982 at Cerro Angostura Spring, Chihuahua, Mexico (Sivinski

2009a, p. 1, 2010; CONABIO 2010). The second collection from Los Azules, Chihuahua, in 1998, was misidentified and is not *C. wrightii*. The third collection from Fronteras, Sonora, in 1890, has not yet been verified (Sivinski 2010, p. 1). As such, the status of the species in Mexico is uncertain.

In summary, there are eight general localities of *Cirsium wrightii* extant within New Mexico. Additional historical populations have been extirpated, including at least two larger and two smaller populations in New Mexico, and there are no known extant populations in Arizona. The population at BLNWR is likely the most robust, with several thousand individuals. Santa Rosa contains mostly sparse scattered localities throughout four sections of land, and some of these have been extirpated recently. The population along Tularosa Creek has undergone a significant reduction since 1995. The remaining populations in the Sacramento Mountains are all small, containing from 15 to perhaps several hundred individuals. The populations at Blue Spring and Alamosa Springs were recently discovered, and there have been no subsequent surveys to determine whether these populations are stable or declining. The collections from Texas were misidentified, and we conclude *C. wrightii* never occurred in the State. Finally, there is only one verified historic collection from Mexico, and no recent information on the status of the species from this population. For these reasons, the status of this species remains tenuous.

#### Summary of Information Pertaining to the Five Factors for *Cirsium wrightii*

Section 4 of the Act and implementing regulations (50 CFR part 424) set forth procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, a species may be determined to be endangered or threatened based on any of the following five factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

In making this finding, information pertaining to *Cirsium wrightii*, in relation to the five factors provided in section 4(a)(1) of the Act, is discussed below.

In making our 12-month finding on a petition to list *Cirsium wrightii*, we considered and evaluated the best available scientific and commercial information. This information includes the petition and associated documents, data from the 1995 through 2009 surveys and recent reports (Sivinski 1996, 2005a, 2006a, 2009, 2009a; Forest Service 2008b; Service 2010b, 2010c), as well as other information available to us. The following analysis examines the five factors described in section 4(a)(1) of the Act and those activities and conditions currently affecting *C. wrightii*, or are likely to affect the species within the foreseeable future.

In considering what factors might constitute threats to a species, we must look beyond the exposure of the species to a particular factor to evaluate whether the species may respond to that factor in a way that causes actual impacts to the species. If there is exposure to a factor and the species responds negatively, the factor may be a threat and, during the status review, we attempt to determine how significant a threat it is. The threat is significant if it drives, or contributes to, the risk of extinction of the species such that the species warrants listing as endangered or threatened as those terms are defined in the Act. However, the identification of factors that could impact a species negatively may not be sufficient to compel a finding that the species warrants listing. The information must include evidence sufficient to suggest that these factors are operative threats that act on the species to the point that the species may meet the definition of endangered or threatened under the Act.

#### *A. Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range*

The most significant threat to *Cirsium wrightii* is the alteration of the hydrology of its rare wetland habitat. In fact, much of the habitat of *C. wrightii* has been and continues to be severely altered and degraded because of past and present land and water management practices including: agriculture and urban development, diversion of springs, and drought. As described below, all of the extant localities may be affected by long-term drought, whereas four of the largest *C. wrightii* localities at Blue Spring, BLNWR, Santa Rosa, and Alamosa Creek have the potential to be further modified by ongoing and future water withdrawal. Changes in water tables throughout the range of *C. wrightii* have often resulted in diminished discharge from springs or complete loss of surface water. Therefore, there has been a trend of

diminishing habitat quantity and excessive degradation of habitat quality for the species throughout its range.

#### *Availability of Water*

*Cirsium wrightii* is found in association with seeps, springs, marshes, and wetlands that have saturated soils with surface or subsurface water flow (NMRPTC 2009; Sivinski 1996, pp. 2–7; Service 1998, p. 2; Worthington 2002a, p. 2). Southwestern riparian and aquatic systems fluctuate due to seasonal and longer term drought and wet periods, floods, and fire. Habitats with fluctuating water levels create circumstances in which population sizes may vary over time, and populations may be periodically extirpated. Because the species occurs only in areas that are water-saturated, populations have a high potential for extirpation when habitat dries due to ground and surface water depletion, draining of wetlands, or drought. Loss of water from *C. wrightii* habitat occurs through changing precipitation patterns, drought, or as a result of human impacts from groundwater pumping (withdrawal) or diversion of surface water; this can lead to the degradation and extirpation of *Cirsium wrightii* habitat (Sivinski 1996, p. 5; 2005, p. 1; Forest Service 2008, p. 19). Moreover, the drying of *C. wrightii* habitat has led to retractions of occurrence boundaries, a reduction in the numbers of plants, and, in some cases, a loss of all individuals at several localities (Sivinski 2005a, pp. 3–4). For example, during the dry conditions from 1994 to 1996, many seeps and springs in the Sacramento Mountains ceased flowing and were completely dry (Sivinski 2006b, p. 12). Naturally occurring water loss from changes in precipitation patterns have affected the volume of water flow at numerous springs in the Sacramento Mountains (Forest Service 2003, p. 43).

#### *Drought*

The National Weather Service Forecast Office and the U.S. Drought Monitor for New Mexico indicate that the Sacramento Mountains experienced a severe to extreme drought from 2003 to 2008 (Forest Service 2008, p. 22). This has led to unusually low stream or spring flows and, in some instances, no flow (e.g., see South Central Mountain 2002, p. 12; Shomaker 2006, p. 8; Gardner and Thompson 2008, p. 2; Newton *et al.* 2009; Sivinski 2005a, pp. 3–4; Forest Service 2003, pp. 53–54). This is likely related to severe drought conditions (Sivinski 2005a, pp. 1, 3–4). Within New Mexico, monsoonal

summer precipitation can be very patchy, with some areas receiving considerably less rainfall than others. Newton *et al.* (2009) studied the hydrogeology of the Sacramento Mountains and found that the fractures in the underlying geology exhibit significant control on surface and groundwater flow and possibly groundwater recharge. Overall, their data suggest that the recharge of water wells and groundwater is correlated to the amount of precipitation during monsoon storms at all elevations (Newton *et al.* 2009, p. 22). Wet periods during summer months can significantly contribute to recharge of the ground water in the Sacramento Mountains, but these are extremely rare events (Newton *et al.* 2009). As such, drought has impacted the recharge of ground water tables throughout the Sacramento Mountains (Forest Service 2008, p. 22). For this reason, the seasonal distribution of yearly precipitation can result in temporary drought conditions and reduced water availability for some *C. wrightii* localities within this mountain range.

In 1995 and 2005, Sivinski (2005a, pp. 3–4) monitored the relative size of *Cirsium wrightii* localities rangewide to document the relationship between water availability in suitable habitat and numbers and extent of plants. He found that, when some localities dried, the localities were either extirpated or much reduced in size (Sivinski 2005a, pp. 3–4). Moreover, drying of occupied habitat also resulted in *Typha latifolia* (cattail) being replaced by dense stands of *Phragmites australis* (Sivinski 2005a, pp. 3–4), which may outcompete native vegetation including *C. wrightii* and significantly increase the threat of wildfire (see discussion below under “*Phragmites australis*”).

Drought also affects the size of an extant locality, even when the water source does not dry out completely. The most severe drought recorded in New Mexico occurred between 1950 and 1956. If drought reduces the amount of groundwater recharge regionally, spring discharge or the areal extent of wetlands could also be reduced. Prolonged drought can lead to diminishment or drying of springs, which would have a negative impact on *Cirsium wrightii* or its habitat. Comparing historical discharges reported in the Black River from 1952 to 1956 (daily mean flow of 15.4 cubic feet per second (cfs) (0.436 cubic meters per second (cms))) to recent discharges (2002 to 2006, daily mean flow of 10.1 cfs (0.286 cms)), flows in the Black River are currently lower than flows during the extreme drought of the 1950s (NMDGF 2007, p.

26). Prolonged drought could adversely impact habitat conditions by reducing hydrologic discharge through the wetland system, thereby desiccating riparian plant communities (e.g., see NMDGF 2008, p. 33), including *C. wrightii*. Because of the documented extirpation and population reductions of the species caused by drought and the possibility of more widespread drought accompanying climate change, we conclude that drought constitutes a threat to *C. wrightii*, both now and in the foreseeable future.

#### Ground and Surface Water Depletion

Habitat loss due to ground and surface water depletion is a threat to *Cirsium wrightii*. Sivinski (1994, pp. 1–2; 1996, p. 4; 2005, p. 1; 2006, p. 4) reported loss or degradation of habitat from water diversion or draining of wetlands in Chaves, Otero, and Sierra Counties, New Mexico, areas that historically supported *Cirsium wrightii*. Increased water extraction in the last 100 years has contributed to the dramatic decline of most surface spring systems in the Chihuahuan Desert (see Corps 2006, p. 4; Karges 2003 and references therein). An historical population in Lake Valley, Sierra County, New Mexico, was extirpated when the wetlands were drained and converted to agricultural use (Sivinski 2005, p. 1; 2006a, p. 1). Moreover, the appropriation of water rights from springs for a “beneficial use,” such as livestock water, farming, domestic use, or recreational facilities, typically uses points of diversion that can curtail natural surface flows and affect *C. wrightii* populations. For example, aquifers in the Sacramento Mountains, which contain half of all known *C. wrightii* localities, are susceptible to appropriation by existing water rights and development of new water rights, which may pose future threats to the species (Service 2008, pp. 12, 23; Forest Service 2008, pp. 23–24). The marshes, springs, and seeps within La Luz Canyon of the Sacramento Mountains are currently and were likely historically diverted or drained for irrigation and agricultural use (Sivinski 1996, p. 5; South Central Mountain 2002, p. 20). Many springs and streams in the Sacramento Mountains that were perennial during the 1900s have become intermittent or have dried completely, including La Luz Creek (Abercrombie 2003, p. 3). In this area, loss of water flow from human activities related to roads, trails, and the capture of spring water for municipal use have also been observed to affect the threatened species *Cirsium vinaceum* (Forest Service 2003, pp. 42–43). The same likely holds true

for *C. wrightii*, although it has not been specifically investigated.

The severe decline in available surface and ground water since the 1990s is due largely to drought and human use (e.g., Shomaker 2006, pp. 8, 20, 26). *Cirsium wrightii* occurrences in La Luz Canyon are within the municipal supply watershed, where pipelines divert water to the City of Alamogordo (Shomaker 2006, pp. 20, 26; Forest Service 2008, p. 21). The number of water wells drilled on both private and National Forest System lands within this area has increased since the 1950s, with the 1980s and 1990s being the most active years for drilling of domestic use wells (Forest Service 2008, p. 22). The total permitted groundwater extraction is approximately 2,400 acre feet per year (300 hectare-meters per year) (98,000,000 gallons per year) (370,000,000 liters per year) from nearly 300 wells (Forest Service 2008, p. 22).

In 2002, the New Mexico State Engineer declared the La Luz Canyon watershed as a Critical Management Area, which means no new groundwater appropriations would be allowed for nondomestic purposes (Forest Service 2008, p. 22). However, for domestic purposes, the demand for water use through surface diversion and ground water withdrawals is expected to increase as a result of the population increase. The human population in Alamogordo, Otero County, New Mexico, increased from about 30,000 to 36,000 from 1995 to 2000, and is expected to increase to about 56,000 by 2040 (South Central Mountain 2002, p. 11). An increasing human population and its associated agricultural and economic activities will require additional water from this relatively dry region.

Current New Mexico State law provides that anyone may obtain a permit for a domestic well, no matter what the consequences for anyone else's water rights or the impact of water resources for the area (e.g., see Belin *et al.* 2003, p. 72). Between 2005 and 2045, the City of Alamogordo's water demand is expected to increase from 7,140 acre-feet per year to 10,842 acre-feet per year (881 hectare-meters per year to 1337 hectare-meters per year) (Shomaker 2006, pp. 43–44). By 2045, the City of Alamogordo will likely have a projected deficit of 6,258 acre-feet per year (772 hectare-meters per year) (more than 2 billion gallons per year) (more than 8 billion liters per year) (Shomaker 2006, p. 44). Withdrawal and diversion of water from wells located on Forest Service and private lands would continue to increase for the foreseeable future and compound the effects of the

recent and ongoing drought, leading to increased degradation of wetland and riparian habitat (Forest Service 2008, p. 23), which contain *Cirsium wrightii* localities. In the Sacramento Mountains, *C. wrightii* occurrences have been and will continue to be altered and potentially degraded by the issuance of a special use permit to maintain and operate water withdrawal from Forest Service lands (Forest Service 2008, p. 26). Development of additional water rights will likely dewater *C. wrightii* localities, constituting a threat to the species in this area for the foreseeable future.

Moreover, the Blue Spring and Santa Rosa occurrences of *Cirsium wrightii* are within areas where water is currently drained from wetlands or diverted or withdrawn for domestic use, which may contribute to degradation and loss of its habitat (Sivinski 1996, p. 5; 2009; 2009a; NMDGF 2007, pp. 14, 17, 22). Additionally, any activity that would interrupt the flow of water from Alamosa Creek has the potential to impact *C. wrightii*. Currently, irrigation and domestic use from about 50 farms does not appear to have reduced the baseflow of about 9 cfs (0.3 cms) from this spring-fed system (Sierra Soil and Water Conservation Service 2008, p. 2). However, Alamosa Creek would likely be negatively affected by long-term drought.

The effects of ongoing and past maintenance and operation of existing water diversions can also limit the size of *Cirsium wrightii* populations (Corps 2007, p. 29). For example, the *C. wrightii* population on City of Roswell lands has been extirpated at this location since the habitat is no longer suitable for the plant (NMDGF 2005, pp. 33–34; Sivinski 1996, pp. 4–5; 2006a, p. 5). Loss of springs and surface water flow in streams resulting from human use and drought have occurred throughout the Roswell Artesian Basin in New Mexico, often resulting in diminished discharge from springs or complete loss of surface water (Taylor 1983, 1987; NMDGF 2005, 2005a, p. 17; Jones and Balleau 1996, pp. 4, 12). Many of these spring systems could have harbored populations of *C. wrightii*; however, it is not possible to determine the extent of the loss of *C. wrightii* populations because many springs went dry before surveys could be conducted. Peak annual pumping of the alluvial aquifer (a water-bearing deposit of sand and gravel) in the Roswell Basin occurred in the 1950s. Since the 1950s, administration and metering of groundwater extraction in the basin by the New Mexico Office of the State Engineer has resulted in

stabilization of groundwater levels (NMDGF 2005a, p. 18).

As artesian wells were developed in the area, discharge from the major springs declined proportionately and some of these springs cease to flow (Jones and Balleau 1996, p. 4). Surface water flow on BLNWR has also been diminished by groundwater pumping, as evidenced by the dead springs on Salt Creek and documented reduction in spring flows on the refuge (Jones and Balleau 1996; p. 12). Aerial photos which show a larger, meandering channel for Bitter Creek are also evidence that discharge from Bitter Creek was once greater (Service 2005a; 70 FR 46312, August 9, 2005). Additionally, BLNWR actively lowers the water levels in wetlands during spring and summer (Service 2006, p. 2). It is unknown how *C. wrightii* responds to these changing water levels on the refuge, but if soils are not continuously saturated throughout the growing season, the species is likely impacted. Information from other localities suggests that populations likely contract or habitat may become invaded by *Phragmites australis* as water is withdrawn and parts of the occupied wetlands dry (e.g., Sivinski 2005a, pp. 3–4).

Surface diversions, primarily for irrigation, and groundwater pumping for domestic and commercial uses also occurs at the Blue Spring locality (NMDGF 2007, p. 22; Lusk 2008). Flow in the Black River is sustained by springs, including Rattlesnake and Blue Springs, and is generally perennial in the reaches around these springs (NMDGF 2007, p. 15). Discharge at Blue Spring has varied over the past 100 years: in 1907, it was recorded at 15.2 cfs (0.430 cms), with a minimum of 14.65 cfs (0.415 cms) (Bjorklund and Motts 1959, pp. 251, 263); from 1952 to 1956, discharge varied from 8.5 to 14 cfs (0.24 to 0.40 cms), with a mean of 12 cfs (0.34 cms) (Bjorklund and Motts 1959, p. 268); and from 2002 to 2006, the mean was 11.75 cfs (0.333 cms), with a range from 6.8 to 23 cfs (0.19 to 0.65 cms) (NMDGF 2007, p.15). Bjorklund and Motts (1959, pp. 247, 263) first reported that water levels within the Black River Valley (including Blue Spring) decline during the late summer and during droughts, mostly from heavy groundwater pumping and lack of aquifer recharge. Based on flows recorded in recent years (2000–2006) at Blue Springs and in the Black River above the Carlsbad Irrigation District diversion, more surface water is appropriated than is available in the system (R. Turner, New Mexico Office of the State Engineer, pers. comm., April

2007; cited in NMDGF 2007, p. 25). This constitutes a significant threat to this locality.

In summary, the alteration and loss of habitat that currently supports *C. wrightii*, due to groundwater and surface water depletion, will continue and likely increase in the foreseeable future. Because this species is dependent on water, we find that long-term drought in combination with ground and surface water withdrawal is currently a significant threat to *C. wrightii* and its habitat, and will continue to be in the foreseeable future.

#### Climate Change

The Intergovernmental Panel on Climate Change (IPCC) states that warming of the climate system is unequivocal, based on observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level (2007a, p. 5). For the next two decades, a warming of about 0.4 degrees Fahrenheit (°F) (0.2 degrees Celsius (°C)) per decade is projected (IPCC 2007a, p. 12). Temperature projections for the following years increasingly depend on specific emission scenarios (IPCC 2007a, p. 13). Various emissions scenarios suggest that average global temperatures are expected to increase by between 1.1 °F and 7.2 °F (0.6 °C and 4.0 °C) by the end of the 21st century, with the greatest warming expected over land (IPCC 2007a, p. 13). Warming in western mountains is projected to cause decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources (IPCC 2007b, p. 14). The IPCC reports that it is very likely that hot extremes, heat waves, and heavy precipitation and flooding will increase in frequency (IPCC 2007b, p. 18).

Based on current understanding of climate change, air temperatures are expected to rise and precipitation patterns are expected to change in areas occupied by *Cirsium wrightii*. Because *C. wrightii* occupies relatively small areas of spring or seep habitat in an arid region plagued by drought and ongoing aquifer withdrawals (e.g., in the Roswell Basin), it may be vulnerable to climatic changes that could decrease the availability of water to suitable habitat. For example, the most severe drought recorded in New Mexico occurred between 1950 and 1956. Based on the discharges reported in the Black River (fed by Blue Spring, the *C. wrightii* locality, and other spring sources) from 1952 to 1956 (daily mean of 15.4 cfs (0.436 cms)) compared to recent discharges (2002 to 2006, daily mean of

10.1 cfs (0.286 cms)), flows in the Black River are currently lower than during the drought of the 1950s (NMDGF 2007, p. 31). Moreover, Sivinski (2005a, pp. 3–4) reports that springs and wet valleys have been affected by drought in at least three canyons of the Sacramento Mountains, New Mexico, resulting in reduced *C. wrightii* populations. Similar water loss may occur within other *C. wrightii* localities, as analyzed above. If climate change leads to future drought, additional dewatering and reduction of *C. wrightii* habitat may occur.

Although the information available on climate change indicates that New Mexico will be impacted (New Mexico Climate Change Advisory Group 2006, p. 1), there is no information specific to the effects of climate change on *Cirsium wrightii* or its habitat. Reliable predictive models have not been developed for use at the local scale (i.e., the eight occupied localities), and there is little certainty regarding the timing and magnitude of the resulting impacts. For example, the vulnerability of *C. wrightii* habitats to a drying climate depends, in large part, on the sources of their water supply. The sources of water to *C. wrightii* habitats are precipitation, surface water, and groundwater. Habitats that are sustained mainly by precipitation are the most likely to be affected in a drying climate. Alternatively, localities that are supplied primarily by groundwater will likely have the greatest resistance to climate change due to water stored in aquifers (e.g., see Poff *et al.* 2002, pp. 18–19). However, based on projections made by the IPCC, we consider climate change to be a potential exacerbating factor, worsening the impacts of other known threats. These threats include habitat degradation from prolonged periods of drought and increased temperature, and the allocation of water for use by the human population and agriculture as well as a number of potential confounding effects. In summary, we do not have evidence indicating that climate change is currently a factor affecting *C. wrightii*'s existence, because the information available on the subject is insufficiently specific to the species or the possible current or future effects of climate change on the sources of their water supply. However, we consider climate change to be a potential exacerbating factor and will continue to evaluate new information on the subject as it becomes available.

#### Introduced Plants

Introduced plants increase the potential for habitat loss due to wildfire and competition with *Cirsium wrightii*.



*Phragmites australis* has recently invaded half of the known *C. wrightii* localities (BLNWR, Tularosa Creek, Santa Rosa, and Karr Canyon), forming dense stands in areas and increasing fuel load and threat of wildfire. Standing dead canes of *P. australis* and associated litter often constitute twice as much biomass as living shoots (Forest Service 2010). The high productivity and density of *P. australis* stands provide fuel loads that are often high. This abundant dead fuel carries fire well, allowing stands to burn even when the current year's shoots are green (Forest Service 2010).

As an example, on March 5, 2000, the Sandhill fire burned 1,000 ac (405 ha) of the western portion of the BLNWR, including portions of Bitter Creek. The fire burned through Dragonfly Spring, eliminating the vegetation shading the spring. Although *Cirsium wrightii* does not occur immediately within the burned area, the changes to wetland vegetation exemplify how its habitat might respond following wildfire. The pre-fire dominant vegetation of submerged aquatic plants and mixed native grasses within the burned area has been replaced by the invasive *Phragmites australis* (NMDGF 2005, p. 19–21). The *P. australis* present at BLNWR is likely of European origin (Service 2006, p. 5). Prior to the wildfire, small patches of *P. australis* occurred throughout Bitter Creek, whereas post-fire, *P. australis* colonized the burned area to form a continuous dense stand (NMDGF 2005, pp. 19–21). Stands of *P. australis* have also recently become a dominant plant in other *C. wrightii* localities (Sivinski 2005a, pp. 3–4; Sivinski and Bleakly 2004, p. 5). Controlled burns have been implemented on BLNWR to burn grass, sedge, cattail, and nonnative vegetation (e.g., *Salsola* spp. (Russian thistle and tumbleweed)), in an attempt to reduce the risk of large uncontrolled wildfires by removing excessive amounts of *Salsola* spp. and *P. australis* (Service 2006). This may temporarily reduce the threat of wildfire in one area of BLNWR, but repeated prescribed burns are likely needed to continually suppress *P. australis* growth (Service 2006, pp. 4–5).

No measures are being implemented in the other localities to reduce *P. australis*. Moreover, temperatures from prescribed burns are rarely high enough to be lethal to *P. australis* or to penetrate deeply into the wet or moist soils common in their habitat (Forest Service 2010 and references therein). Prescribed fire burns above-ground parts of *P. australis*, but below-ground rhizomes usually survive and produce plants later in the growing season or in subsequent

years (Forest Service 2010 and references therein). Rarely is *P. australis* abundance decreased by fire, and postfire recovery is typically rapid. As such, prescribed fire likely will do little to reduce the long-term threat of *P. australis* to *C. wrightii*.

In addition to increasing the potential for wildfire, *Phragmites australis* can also quickly invade a site and take over a wetland, crowding out native plants and changing hydrology (Plant Conservation Alliance 2005, p. 1). The dense plant growth blocks sunlight to other plants growing in the immediate area and occupies all available habitat, turning many wetlands into dense stands that support only *P. australis* (Plant Conservation Alliance 2005, p. 1). Two *Cirsium wrightii* localities have recently been either extirpated (an occurrence in Karr Canyon), or significantly reduced in size (Tularosa Creek), following an expansion of *P. australis* (Sivinski 1996, p. 2, 2005a, p. 4; 2009a, p. 2). *P. australis* is a current threat and will likely be a continuing threat for *C. wrightii* localities through increased fire risk, competition, and changes in hydrology, especially when habitat is disturbed through burning or drying.

#### Ungulate Grazing

Grazing likely impacts some localities of *Cirsium wrightii*, but does not appear to be a widespread threat to the species. It is estimated that livestock grazing has damaged approximately 80 percent of stream and riparian ecosystems in the western United States (Belsky *et al.* 1999, p. 419). The damage occurs from increased sedimentation, decreased water quality, and trampling and overgrazing of stream banks where succulent forage exists (Armour *et al.* 1994, p. 10; Belsky *et al.* 1999, p. 419; Fleischner 1994, p. 631). Moreover, many acres of marsh habitats at Santa Rosa have also been plowed and converted to *Festuca pratensis* (meadow fescue) pasture for livestock grazing (Service 2005, p. 10; Corps 2007, p. 25). In the semi-arid southwestern United States, wet marshes and other habitat of *C. wrightii* attract ungulates because of the availability of water and high-quality forage (e.g., see Hendrickson and Minckley 1984, p. 134). Similar to *C. vinaceum*, dry periods likely increase the effects of livestock trampling and herbivory on *C. wrightii* when other water and forage plants are not available (75 FR 30761, June 2, 2010). Grazing may be more concentrated within habitats similar to those occupied by *C. wrightii* during drought years, when livestock are prone to congregate in wetland habitats or where forage

production is greater than in adjacent dry uplands (e.g., see Forest Service 2003). Although no studies specifically related to the effects of livestock grazing on *C. wrightii* have been conducted (NMRPTC 2009, p. 2), livestock will likely eat *C. wrightii* when other green forage is scarce, and when the seedlings or rosettes are developing and abundant.

The localities in the Sacramento Mountains, Santa Rosa, Alamosa Springs, and Blue Spring have the potential to be subjected to trampling and herbivory (75 FR 30762; NMDGF 2000, p. 2, 2004, p. 7, 2005, p. 47; Corps 2007, p. 25; Service 1994, p. 6, 2005c, p. 2). For example, about three quarters of *C. wrightii* were grazed at one locality near Santa Rosa (Corps 2007, p. 25). Additionally, much of the private wet meadows and marsh habitats in the Santa Rosa area have been severely degraded by livestock grazing for many years (Sivinski and Bleakly 2004). Except for Blue Hole Cienaga, we are not aware of any fences enclosing these localities that would limit impacts to the species. In the Sacramento Mountains, for example, springs and marshes provide a majority of the watering sites for both livestock and wildlife species, especially elk (75 FR 30762). These wet springs and marshes are subject to trampling and hoof damage, and receive especially heavy use during drought periods, when neither water nor green forage are readily available elsewhere. Trampling could easily result in damage to seedlings, rosettes, and flowering stalks, thereby preventing reproduction by affected plants. It is possible that elk and livestock grazing within and adjacent to spring ecosystems could alter or remove habitat or limit the distribution of *Cirsium wrightii*; however, we found little information to support this possibility. Still, we believe the observations of livestock and elk herbivory and trampling that directly affect *C. vinaceum* and its habitat likely are also occurring in some of the *C. wrightii* localities; however, it is unknown whether these are localized or widespread threats to the species.

In summary, while livestock activities do not appear to be a widespread threat at the current time, localized impacts have been observed, and increased use of wet springs and marshes during drought conditions constitutes a threat in the foreseeable future. We will continue to monitor livestock grazing and trampling to determine whether *C. wrightii* is threatened.

#### Wetland Filling and Development

As described below, wetland filling and development has impacted the



Santa Rosa locality, but does not appear to be a threat to the species. A substantial percentage of wetlands in the Santa Rosa area have disappeared in the last 50 to 80 years (Metric Corporation *et al.* 2002, p. 5). Springs that fed suitable habitat for *Helianthus paradoxus* and likely also contained *Cirsium wrightii* have been converted to swimming pools and fishing ponds or drained and filled for sports fields in the towns of Roswell and Santa Rosa, New Mexico (e.g., see Sivinski and Bleakly 2004, p. 1; Service 2005, p. 8). Moreover, some springs and associated wetlands where *C. wrightii* occurred have been drained and developed, and the potential for further development exists (Metric Corporation 2001; Metric Corporation *et al.* 2002; Sivinski 2009a, p. 1; Sivinski and Bleakly 2004, p. 1; Service 2008b, p. 42).

Some of the *Cirsium wrightii* occurrences within the Santa Rosa locality continue to be impacted through filling and development and regular mowing. *C. wrightii* occurs at the Blue Hole fish hatchery ponds that are owned by the City of Santa Rosa (Sivinski 1996, p. 4). The City of Santa Rosa plans to dredge and fill these ponds for municipal use in the foreseeable future (Service 2008b, p. 42), which would undoubtedly impact the species. A similar action occurred in 2001 when the *C. wrightii* population at Power Dam Municipal Park in Santa Rosa was extirpated when the reservoir was drained (Sivinski 2005a, p. 3; 2009a, p. 1). Numerous wetlands in Santa Rosa were also lost many years ago to an impoundment, in which 17 ponds were created and used for a fish hatchery. The fish hatchery has since been abandoned, and all but four of the ponds filled. The remaining adjacent 116 ac (47 ha) of the Blue Hole Cienaga were purchased by the State of New Mexico to protect habitat that includes the Federally threatened *Helianthus paradoxus*, *C. wrightii*, and the State-endangered *Spiranthes magnicamporum* (Great Plains lady's tresses) (New Mexico State Forestry 2008, p. 1). Although we are not aware of any other specific residential or commercial development plans at this or other localities, actions that drain or fill wetlands or other habitat occupied by the species would impact *C. wrightii*.

#### Summary of Factor A

In summary, we found that past and present alteration of rare desert springs, seeps, and wetland habitats that support *Cirsium wrightii* is a significant threat. The four largest localities of *C. wrightii* at Blue Spring, BLNWR, Santa Rosa, and Alamosa Creek have the potential to be

further modified by ongoing and future water withdrawal. Changes in water tables throughout the range of *C. wrightii* have also resulted in diminished discharge from springs or complete loss of surface water. Therefore, there has been a trend of diminishing habitat quantity and excessive degradation of habitat quality for the species throughout its range, as a result of agriculture and urban development, diversion of springs, and drought. Moreover, the presence of and effects from *Phragmites australis* threatens *C. wrightii* localities through increased fire risk, competition, and changes in hydrology. On the basis of the information presented above, we find that *Cirsium wrightii* may be threatened by the present or threatened destruction, modification, or curtailment of its habitat, both now and in the foreseeable future.

#### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We do not have any evidence of risks to *Cirsium wrightii* from overutilization for commercial, recreational, scientific, or educational purposes, and we have no reason to believe this factor will become a threat to the species in the future. Therefore, we find overutilization for commercial, recreational, scientific, or educational purposes does not threaten *C. wrightii* now or in the foreseeable future.

#### C. Disease or Predation

##### Disease

*Cirsium wrightii* is not known to be affected or threatened by any disease. Therefore, we find that disease does not threaten *C. wrightii* now or in the foreseeable future.

##### Insect Predation

Native and nonnative insect populations have the potential to impact the condition, reproduction, and distribution of *Cirsium wrightii*. Observed seed predators on the similar *C. vinaceum* in the Sacramento Mountains include *Paracantha gentilis*, a native specialist gall fly; *Platyptilia carduidactyla*, the native artichoke plume moth; *Euphoria inda*, a native generalist bumble flower beetle; *Rhinocyllus conicus*, an introduced seed-head weevil; and *Trichosiocalus horridus*, an introduced rosette weevil (Sivinski 2008, pp. 1–11; Gardner 2010, pp. 2–3). There have been intentional releases of *Rhinocyllus conicus* to control *Carduus nutans* (musk thistle) (Sivinski 1994, p. 2; 2007, p. 6; NMRPTC 2009, p. 2; Bridge 2001, p. 1;

AGFD 2001, p. 2). This exotic weevil has recently been found in habitat occupied by *C. wrightii*, *C. vinaceum*, and the exotic *Carduus nutans* at the Silver Springs locality (Sivinski 2007, p. 6; Gardner and Thompson 2008, p. 4). It is not known where *Trichosiocalus horridus* came from or whether they were intentionally released (Gardner 2010, p. 3); however, this exotic rosette weevil is also present in *Carduus nutans* populations ranging from the northern extent of the Mescalero Apache reservation south to Agua Chiquita canyon in the Sacramento Mountains.

*Rhinocyllus conicus* is not host specific to *Carduus* species and has been found living on 22 of the North American *Cirsium* species (Louda *et al.* 2003). This weevil is available from commercial suppliers and is easily gathered and transported from established colonies. Breeding and egg placement by *R. conicus* begins in mid-June, peaks in early July, and continues into August (Sivinski 2008, p. 5). Newly hatched larvae bury into the flower head and feed on the tissue. Most *R. conicus* at the Silver Springs locality emerge from the flower heads by early September; however, some immature larvae were still present in the flower heads of *C. vinaceum* in September (Sivinski 2008, p. 5). Flower heads of *C. wrightii* grow during late July to early August, which overlaps with developing and feeding larvae of *R. conicus*. The establishment of *R. conicus* beyond the Silver Springs locality will likely occur in the near future because stands of *C. nutans* are common in many of the drainages throughout the Sacramento Mountains (Gardner and Thompson 2008, p. 4), and we are concerned that it may spread to *C. wrightii* populations. For these reasons, we intend to monitor localities in the Sacramento Mountains to determine whether *C. wrightii* could be a potential host and possibly threatened by *R. conicus* infestations.

*Trichosiocalus horridus*, feeds on *Carduus nutans* during the rosette stage, killing first-year rosettes and stopping the growth of older plants. This weevil is available from commercial suppliers or can be gathered and transported from established colonies (Flanders *et al.* 2001, p. 4; Jennings *et al.* 2010, pp. 4–5). Moreover, *T. horridus* is capable of spreading at least a mile (1.61 km) per year on their own (Flanders *et al.* 2001, p. 4). Adults emerge from summer resting places in the fall. They lay eggs in the midrib of thistle leaves, and complete egg-laying in the spring. After 10 to 12 days, the eggs hatch, and the young weevils tunnel from the midrib into the rosette, feeding and causing

damage or possibly killing the crown tissue. The new adults emerge in May and June, feed briefly, and pass the summer in a period of inactivity (Flanders *et al.* 2001, p. 3). We are concerned about potential effects to *C. wrightii* and intend to monitor *C. wrightii* localities to determine if this introduced rosette weevil threatens the species.

*Rhinocyllus conicus* and a native predator, the stem borer weevil (*Lixus pervestitus*), caused a widespread premature stem death to the flower heads of the Silver Springs population of the endangered *C. vinaceum*, which co-occurs with *C. wrightii* (Sivinski 2007, pp. 8–12). These 2 insects collectively damaged up to 99 percent of *C. vinaceum* within the Silver Springs locality, resulting in nearly complete die-off of flowering stems (Sivinski 2008, p. 9, 2009b). Thus far, *L. pervestitus* has not been found on *C. vinaceum* outside of the Silver Springs population, and little is known about this insect species in New Mexico (Sivinski 2008, pp. 10–11). Nevertheless, the reproductive output of the population of *C. vinaceum* at Silver Springs was greatly reduced by these insects. Similarly, it is unknown if these weevils feed on *C. wrightii* or have the same level of impact as that of *C. vinaceum*.

#### Summary of Factor C

In summary, it is not known at this time whether insect predators would decrease seed production and increase the threat to the existence of *C. wrightii* populations. The potential for insect predators to become a threat to *C. wrightii* in the future needs to be monitored and evaluated. Therefore, we intend to monitor populations, especially in the Sacramento Mountains, for impact due to insect predation.

#### D. The Inadequacy of Existing Regulatory Mechanisms

One primary cause of decline of *Cirsium wrightii* is the loss, degradation, and fragmentation of habitat due to human activities. Federal and State laws have been insufficient to prevent past and ongoing losses of the limited habitat of the species, and are unlikely to prevent further declines.

#### Clean Water Act

Pursuant to section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344), the U.S. Army Corps of Engineers (Corps) regulates the discharge of dredged or fill material into all waters of the United States, including wetlands. In general, the term “wetlands” refers to areas

meeting the Corps criteria of having hydric (wet) soils, hydrology (either a defined minimum duration of continuous inundation or saturation of soil during the growing season), and a plant community that is predominantly hydrophytic vegetation (plants specifically adapted for growing in a wetland environment). Much of the habitat occupied by *Cirsium wrightii* qualifies as wetlands.

Any discharge of dredged or fill material into waters of the United States, including wetlands, requires a permit from the Corps. These include individual permits, which would be issued following a review of an individual application, and general permits that authorize a category or categories of activities in a specific geographical location or nationwide (33 CFR parts 320–330). General and special permit conditions may vary among the various general permits. Although the use of any individual or general permit requires compliance with the Act when there are threatened or endangered species present, only three (Santa Rosa, BLNWR, and Silver Springs) of the eight localities co-occur with either *Helianthus paradoxus* or *Cirsium vinaceum*, which are both listed under the Act. Even at these three localities, we are not aware of any protections that have been provided by the CWA.

While the CWA provides a means for the Corps to regulate the discharge of dredged or fill material into waters and wetlands of the United States, it does not always provide adequate protection of wetlands. Private and State landowners of wetlands are often unaware of this permitting requirement, and may fill or drain their lands without requesting determination of wetland status or a permit (Service 2005, p. 22). For example, in 2003, the New Mexico Department of Transportation violated the CWA in the right-of-way of Highway 91 in Santa Rosa within *Helianthus paradoxus* habitat (Service 2008c, p. 12; New Mexico Department of Transportation 2003, pp. 1–2). In 2001, the New Mexico Department of Transportation also mowed *Helianthus paradoxus* in the wetland within the right-of-way of La Pradira Avenue (now Blue Hole Road) and proposed to destroy at least 20 *C. wrightii* plants in conjunction with reconstruction of the road (Metric Corporation 2001, pp. 12, 21). Many applicants are required to provide compensation for wetlands losses (*i.e.*, no net loss), and many smaller impact projects remain largely unmitigated, unless specifically required by other environmental laws such as the Act. Specifically, we found that *C. wrightii* localities are not

currently protected from the construction and maintenance of irrigation facilities and functionally related structures, which are exempt from Section 404 of the CWA, and therefore, do not receive any general protections that may have resulted from status determination and permitting process by the Corps (*e.g.*, see Corps 2007). Finally, we are not aware of any Corps permits that have been issued for the habitat where this species occurs or historically occurred, indicating that there is little protection provided to *C. wrightii* through the CWA.

Additionally, recent court cases limit the Corps’ ability to utilize the CWA to regulate the discharge of fill or dredged material into the aquatic environment within the current range of *Cirsium wrightii* (*Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) (SWANCC)). Additionally, there may be instances where wet marshes occupied by *C. wrightii* lack sufficient connection to waters of the United States for the Corps to assert jurisdiction under the authority of the CWA. For example, the Corps frequently cites the SWANCC decision as their reason for not taking jurisdiction over water bodies that do not meet the definition of waters of the United States. For these reasons, we conclude that regulation of wetland filling by the Corps under the CWA is inadequate to protect *C. wrightii* from further decline.

#### State of New Mexico

The State of New Mexico lists *Cirsium wrightii* as endangered under the New Mexico Endangered Plant Species Act (9–10–10 NMSA). As such, *C. wrightii* is protected from unauthorized collection, transport, or sale. This law prohibits the taking, possession, transportation and exportation, selling or offering for sale of any listed plant species. Listed species can be collected only under permit from the State of New Mexico for scientific studies and impact mitigation. However, this law does not provide any protection for *C. wrightii* habitat. Moreover, there are no statutory requirements under the jurisdiction of the State of New Mexico that serve as an effective regulatory mechanism for reducing or eliminating the threats (*see* Factors A and C above) that may adversely affect *C. wrightii* or its habitat. Nor are there any requirements under the New Mexico State statutes to develop a recovery plan that will restore and protect existing habitat for the species. Therefore, the species does not have a recovery plan, conservation plan, or conservation agreement. For these reasons, we find that existing New

Mexico State regulatory mechanisms are currently inadequate to protect *C. wrightii*. As noted, these designations provide no regulatory protection for the habitat or the species to prevent further decline.

#### Other Federal Protections

Under the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*) and the National Forest Management Act of 1976 (16 U.S.C. 1600 *et seq.*), the Forest Service is directed to prepare programmatic-level management plans to guide long-term resource management decisions. Under this direction, *Cirsium wrightii* is on the Regional Forester's Sensitive Species List (Forest Service 2008a). The Forest Service policy (FSM 2670.3) states that biological evaluations must be completed for sensitive species and signed by a journey-level biologist or botanist. The Lincoln National Forest will continue developing biological evaluation reports and conducting analyses under the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) for each project that will affect *Cirsium wrightii* or its habitat. Nevertheless, only 2 of the 8 general localities occur on Forest Service lands, and these are extremely small, composed of less than 70 plants total. Therefore, even if protections were afforded to the species due to its Forest Service sensitive-species status, the number of localities are insufficient to conserve *C. wrightii* rangewide.

#### Incidental Protections Resulting From Association With Other Listed Species

BLNWR was established in 1937 as wintering and breeding grounds for migratory birds. *Cirsium wrightii* was not known to occur on the refuge until 1998 (Service 1998). Consequently, management was directed primarily at creating dikes so that ponds could be created and their water levels controlled for the benefit of waterfowl. This likely was beneficial to *C. wrightii* by unknowingly creating more habitat. Although current management of BLNWR recognizes and includes Federally listed species in its maintenance and operations, because *C. wrightii* is not a Federally threatened or endangered species, we are aware of only one project that has specifically considered and incorporated measures to limit impacts on the species or specifically analyzed whether actions proposed by the refuge would cause any adverse effects (Service 2010a, p. 7).

#### Summary of Factor D

In summary, *Cirsium wrightii* receives inadequate protection from the CWA.

Similarly, the species lacks adequate regulatory protection from its various designations—a Forest Service sensitive species, or endangered status by the State of New Mexico, because these designations only serve to notify the public of the species' status and do not require conservation or management actions. We are not aware of any other existing regulatory mechanisms.

*Cirsium wrightii* is currently threatened by the inadequacy of existing regulatory mechanisms. This will continue into the foreseeable future.

#### *E. Other Natural or Manmade Factors Affecting the Species' Continued Existence*

##### Hybridization

*Cirsium wrightii* is capable of crossbreeding with other native *Cirsium* species to produce hybrid offspring (Correll and Johnston 1979, p. 1719; NMRPTC 2009, p. 2; Worthington 2002). For example, *Cirsium* species observed at Rattlesnake Springs (Carlsbad Caverns National Park), New Mexico, show characteristics that are intermediate between *C. wrightii* and *C. texanum* (NMRPTC 2009, p. 2). This *Cirsium* population blooms in May rather than in August through October, as is typical of *C. wrightii*. *C. wrightii* sometimes occurs with the threatened *C. vinaceum* in the Sacramento Mountains, where a few hybrids between these rare taxa have been observed; however, hybrid plants are uncommon (Service 2008a, p. 13; Worthington 2002). While hybridization between *C. wrightii* and other *Cirsium* species has been observed, it is uncommon, and does not appear to be a threat to *C. wrightii*.

##### Herbicide Use

*Cirsium wrightii* is likely eliminated from its habitat by individuals that believe it is a noxious weed, due to its large and conspicuous size (Sivinski 1996, p. 10). At least one locality in the Sacramento Mountains is currently susceptible to herbicide application or mowing because it is found in association with an introduced weed (*Arctium minus* (burdock)) within the highway right-of-way that is frequently treated (Sivinski 1996, p. 6). Another locality of *C. wrightii* in the Sacramento Mountains is surrounded by dense stands of *Centaurea melitensis* (Malta star-thistle) that could also potentially be treated with herbicides (Sivinski 1996, p. 6). If herbicides are applied to other localities, *C. wrightii* could be impacted. For example, in June 2007, on Federal Highway 82 in Otero County, a misapplication of herbicide by the State of New Mexico Department of

Transportation injured or killed *C. wrightii*, as well as the Federally threatened species *C. vinaceum* and *Argemone pleiacantha* ssp. *pinnatisecta* (Sacramento prickly poppy) (Tonne 2007). Additionally, in June 2010, herbicide was applied to the highway 91 right-of-way in Santa Rosa, likely killing or injuring *C. wrightii* and *Helianthus paradoxus* (Service 2010c, p. 1).

The indirect effects of herbicide application also have the potential to affect the species. For example, in 2002, shortly after application in upland areas, heavy rains washed the common herbicide tebuthiuron into Threemile Draw, a tributary to the Black River, in the vicinity of the Blue Spring locality (NMDGF 2007, p. 24). Farmers downstream in Malaga reported damage to irrigated crops from this herbicide. It is unknown whether this affected *C. wrightii*, but demonstrates that indirect effects from herbicide application on upland areas may also impact riparian vegetation. After reviewing this information, we find that effects from herbicide use have the potential to impact *C. wrightii*, but are currently not known to be impacting most localities.

##### Oil and Gas Development and Mining

Oil and gas development occurs in some areas occupied by *Cirsium wrightii*. Since 2001, there has been a significant expansion of oil and gas operations in Eddy County, especially within the Black River watershed and, in particular, around Blue Spring (NMDGF 2007, pp. 18–19; NMDGF 2005, p. 35). Several low-water crossings span the Black River. Transit of heavy trucks carrying petroleum-derived products could result in surface water contamination from leakage or accidents (NMDGF 2007a, p. 20). Similarly, oil and gas development in this area of southeastern New Mexico has the potential to impact groundwater (Goodbar 2007, pp. 213–214). As an example, there is a history of oil and gas industry operations on and adjacent to BLNWR, which have resulted in the spillage of oil and brine onto the refuge (Service 2005a; NMDGF 2002, pp. 3–4). Development of oil and gas wells is anticipated to continue into the foreseeable future in the proximity of *C. wrightii* habitat (e.g., see Service 2005a, p. 46306). Oil drilling also occurs throughout the Roswell Basin and Eddy County, New Mexico (NMDGF 2002, pp. 2–4, 2005a, pp. 25, 78; Service 2005a, p. 46315; Goodbar 2007). This activity and associated actions can threaten the water quality of the aquifer on which this species depends. Petroleum contamination has also been reported from the Black River and areas adjacent

to BLNWR (NMDGF 2005a, pp. 18–19; Richard 1989).

Additionally, a permit was recently issued by the New Mexico Energy, Minerals and Natural Resources Department for subsurface drilling and exploration of the mineral bertrandite on Sullivan Ranch (New Mexico Mining and Minerals Division 2010), near the *C. wrightii* locality at Alamosa Springs, Socorro County, New Mexico, which has the potential to affect the species (Sivinski 2009c; NMDGF 2000). However, no specific assessment of potential water quality threats has been conducted, and it is unknown whether a decrease in water quality from oil and gas development or contamination from exploration of minerals would affect the growth or reproduction of *C. wrightii* to such an extent as to constitute a widespread threat to the species. Nevertheless, oil and other contaminants from development and drilling activities throughout these areas could enter the aquifer supplying the springs and seeps inhabited by *C. wrightii* when the limestone layers are pierced by drilling activities. An accidental oil spill or groundwater contamination has the potential to pollute water sources that support *C. wrightii* and potentially threaten the species in the foreseeable future, although it is unclear whether these impacts would be localized or widespread threats to the species.

#### Invasive Plants

The potential impact of *Phragmites australis* on *Cirsium wrightii* habitat has been discussed in threat factor A, above. The following additional invasive terrestrial plant species have the potential to affect *C. wrightii* at most localities: *Lythrum salicaria* (purple loosestrife), *Elaeagnus angustifolia* (Russian olive), *Tamarix* spp., *Salsola* spp., *Dipsacus fullonum* (teasel), *Carduus nutans*, *Conium maculatum* (poison hemlock), *Centaurea melitensis*, *Cirsium arvense* (Canada thistle), and *Cirsium vulgare* (bull thistle). These plants present unique challenges and potential threats to the habitat of *C. wrightii*. However, most of the exotic plants cannot tolerate the continuously saturated substrates that are typical in *C. wrightii* habitats.

For example, *Carduus nutans* infests much of the riparian habitat on Lincoln National Forest (Gardner and Thompson 2008, pp. 1, 4), but does not appear to impact *C. wrightii* through competition. Sivinski (1996, p. 6) reports that *Tamarix* spp. and *E. angustifolia* are becoming dominant in many riparian and wetland areas, but that these species likely do not threaten *C. wrightii*

because *C. wrightii* grows in saturated substrates that are not suitable habitat for these exotic trees. Nevertheless, they do invade wetlands when the area dries (e.g., due to severe drought) and, once they become established, can survive in wet habitats when the moisture returns (Sivinski 2007, p. 2). Still, *Tamarix* spp. may impact spring habitats primarily through the amount of water it consumes, and from the chemical composition of the leaves it drops on the ground and into the springs.

*Tamarix* spp. leaves add salt to the soil through its leaf litter (the leaves contain salt glands) (Di Tomaso 1998). Because *Tamarix* spp. grow along the edge of water courses, it is possible that this could affect the soil chemistry of areas inhabited by *C. wrightii*. However, no research has been conducted specifically on the effect of *Tamarix* spp. or *E. angustifolia* on *C. wrightii*.

*Salsola* spp. (Russian thistle; tumbleweed) is another introduced plant species that has the potential to degrade spring ecosystems. *Salsola* spp. is not a riparian species like *Tamarix* spp. (salt cedar) or *Phragmites australis*; however, the plant can accumulate in spring channels following wind storms. In 2005, BLNWR conducted an emergency Intra-Service consultation under section 7 of the Act for the removal of *Salsola* spp. and *Kochia scoparia* (tumbleweed) from a spring ditch (Service 2005b). Wind had blown these plants into the channel to a depth of 3 to 4 ft (0.9 to 1.2 m), completely shading the water and overloading the small channel with organic material. Noel (1954, p. 124) also reported *Salsola* spp. accumulating in a spring near Roswell. We are not aware of this situation occurring at other localities, but we have not regularly monitored all *Cirsium wrightii* localities for *Salsola* spp. occurrences. Therefore, it is unknown whether this is a threat to the species. Nevertheless, control of *Salsola* spp. is an ongoing management activity at BLNWR, and may occur within areas occupied by *C. wrightii*.

The eight localities of *Cirsium wrightii* generally lack large, aggressive, exotic wetland weeds, such as *Lythrum salicaria* (purple loosestrife), which could dominate *C. wrightii* habitat. *Lythrum salicaria* is a Eurasian species that has been modifying wetlands and outcompeting native species in North America for many decades (Natural Resources Conservation Service 2000, pp. 1–2). *Lythrum salicaria* appeared in New Mexico in the 1990s and is extant in the Mimbres Mountains, Grant County and Sandia Mountains, Bernalillo County. The Sandia Mountains occurrence of this invasive

weed covers an alkaline spring seep similar to some of the *C. wrightii* habitats in the Sacramento Mountains (Sivinski 2006b, p. 15). If it also spreads to any of the eight localities, this aggressive wetland weed could impact *C. wrightii* habitat.

We currently have no information that these introduced plants are immediate threats to *Cirsium wrightii*. However, *Carduus nutans* may be serving as a vector for *Rhinocyllus conicus*, the exotic seed head weevil, discussed under Factor C. Based on possible interactions with water availability and climate change, these exotic plants could potentially threaten *C. wrightii* in the future; however, we do not believe they pose a current threat.

#### Summary of Factor E

In summary for Factor E, we do not currently consider hybridization, herbicide use, oil and gas development and mining as threats to the species; however, these may become threats in the future. Similarly, except for *Phragmites australis*, we do not consider invasive plants as a significant threat to the species now; however, they could potentially threaten *Cirsium wrightii* in the foreseeable future. We do consider *Phragmites australis* to be a threat to *C. wrightii* localities as a result of the increased fire risk, competition, and changes in hydrology its presence causes.

#### Finding

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to *Cirsium wrightii*. Section 3(6) of the Act defines an endangered species as “any species which is in danger of extinction throughout all or a significant portion of its range,” and section 3(20) defines a threatened species as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” Under the Act and our implementing regulations, a species may warrant listing if it is endangered or threatened throughout all or a significant portion of its range. The threats to *C. wrightii* occur throughout its range and generally are not restricted to any particular significant portion of that range. Accordingly, our assessment and proposed determination applies to the species throughout its entire range.

*Cirsium wrightii* faces threats from present or threatened destruction, modification, and curtailment of its habitat, primarily from natural and human-caused modifications of its

habitat due to ground and surface water depletion, drought, and invasion of *Phragmites australis* (Factor A), and from the inadequacy of existing regulatory mechanisms (Factor D). *Cirsium wrightii* occupies relatively small areas of seeps, springs, and wetland habitat in an arid region plagued by drought and ongoing and future water withdrawals. The species' highly specific requirements of saturated soils with surface or subsurface water flow make it particularly vulnerable to these threats to an extent that the species may become endangered within the foreseeable future, depending primarily on how much modification or drying of its limited amount of habitat may occur.

We find that *Cirsium wrightii* is likely to become endangered throughout all or a significant portion of its range within the foreseeable future based on the threats described above. Therefore, on the basis of the best available scientific and commercial information, we find that *Cirsium wrightii* meets the definition of endangered or threatened in accordance with sections 3(6) and 4(a)(1) of the Act and listing is warranted. While we conclude that listing *C. wrightii* is warranted, an immediate proposal to list this species is precluded by other higher priority listings, which we address below.

#### Listing Priority Number

The Service adopted guidelines on September 21, 1983 (48 FR 43098) to establish a rational system for utilizing available resources for the highest priority species when adding species to the Lists of Endangered or Threatened Wildlife and Plants or reclassifying species listed as threatened to endangered status. These guidelines, titled "Endangered and Threatened Species Listing and Recovery Priority Guidelines" address the immediacy and magnitude of threats, and the level of taxonomic distinctiveness by assigning priority in descending order to monotypic genera (genus with one species), full species, and subspecies (or equivalently, distinct population segments of vertebrates).

As a result of our analysis of the best available scientific and commercial information, we have assigned *Cirsium wrightii* a Listing Priority Number (LPN) of 8, based on our finding that the species faces threats that are of moderate magnitude and are imminent. These threats include the present or threatened destruction, modification or curtailment of its habitat; predation; and the inadequacy of existing regulatory mechanisms. These threats are ongoing and therefore considered imminent.

Under the Service's guidelines, the magnitude of threat is the first criterion we look at when establishing a listing priority. The guidance indicates that species with the highest magnitude of threat are those species facing the greatest threats to their continued existence. These species receive the highest listing priority. We consider the threats that *Cirsium wrightii* faces to be moderate in magnitude because the major threats (habitat loss and degradation due to alteration of the hydrology of its rare wetland habitat), while serious and occurring rangewide, do not collectively rise to the level of high magnitude, relative to other species. The species occurs only in areas that are water-saturated and populations have a high potential for extirpation when habitat dries due to ground and surface water depletion, draining of wetlands, or drought.

Under our LPN guidelines, the second criterion we consider in assigning a listing priority is the immediacy of threats. This criterion is intended to ensure that the species facing actual, identifiable threats are given priority over those for which threats are only potential or that are intrinsically vulnerable but are not known to be presently facing such threats. We consider all of the threats to be imminent because we have factual information that the threats are identifiable and that the species is currently facing them in many portions of its range. Long-term drought, in combination with ground and surface water withdrawal, pose a current and future threat to *C. wrightii* and its habitat. These actual, identifiable threats are covered in greater detail in Factors A and D of this finding. All of the threats are ongoing and therefore imminent. In addition to their current existence, we expect these threats to continue and likely intensify in the foreseeable future.

The third criterion in our Listing Priority Number guidance is intended to devote resources to those species representing highly distinctive or isolated gene pools as reflected by taxonomy. *Cirsium wrightii* is a valid taxon at the species level and, therefore, receives a higher priority than subspecies, but a lower priority than species in a monotypic genus. Therefore, we assigned *Cirsium wrightii* an LPN of 8.

We will continue to monitor the threats to *Cirsium wrightii* and the species' status on an annual basis, and should the magnitude or the imminence of the threats change, we will re-visit our assessment of the LPN.

Work on a proposed listing determination for *Cirsium wrightii* is precluded by work on higher priority listing actions with absolute statutory, court-ordered, or court-approved deadlines and final listing determinations for those species that were proposed for listing with funds from previous fiscal years. This work includes all the actions listed in the tables below under expeditious progress.

#### Preclusion and Expeditious Progress

Preclusion is a function of the listing priority of a species in relation to the resources that are available and competing demands for those resources. Thus, in any given fiscal year (FY), multiple factors dictate whether it will be possible to undertake work on a proposed listing regulation or whether promulgation of such a proposal is warranted but precluded by higher-priority listing actions.

The resources available for listing actions are determined through the annual Congressional appropriations process. The appropriation for the Listing Program is available to support work involving the following listing actions: Proposed and final listing rules; 90-day and 12-month findings on petitions to add species to the Lists of Endangered and Threatened Wildlife and Plants (Lists) or to change the status of a species from threatened to endangered; annual determinations on prior "warranted but precluded" petition findings as required under section 4(b)(3)(C)(i) of the Act; critical habitat petition findings; proposed and final rules designating critical habitat; and litigation-related, administrative, and program-management functions (including preparing and allocating budgets, responding to Congressional and public inquiries, and conducting public outreach regarding listing and critical habitat). The work involved in preparing various listing documents can be extensive and may include, but is not limited to: Gathering and assessing the best scientific and commercial data available and conducting analyses used as the basis for our decisions; writing and publishing documents; and obtaining, reviewing, and evaluating public comments and peer review comments on proposed rules and incorporating relevant information into final rules. The number of listing actions that we can undertake in a given year also is influenced by the complexity of those listing actions; that is, more complex actions generally are more costly. The median cost for preparing and publishing a 90-day finding is \$39,276; for a 12-month

finding, \$100,690; for a proposed rule with critical habitat, \$345,000; and for a final listing rule with critical habitat, the median cost is \$305,000.

We cannot spend more than is appropriated for the Listing Program without violating the Anti-Deficiency Act (*see* 31 U.S.C. 1341(a)(1)(A)). In addition, in FY 1998 and for each fiscal year since then, Congress has placed a statutory cap on funds which may be expended for the Listing Program, equal to the amount expressly appropriated for that purpose in that fiscal year. This cap was designed to prevent funds appropriated for other functions under the Act (for example, recovery funds for removing species from the Lists), or for other Service programs, from being used for Listing Program actions (*see* House Report 105–163, 105th Congress, 1st Session, July 1, 1997).

Since FY 2002, the Service's budget has included a critical habitat subcap to ensure that some funds are available for other work in the Listing Program ("The critical habitat designation subcap will ensure that some funding is available to address other listing activities" (House Report No. 107–103, 107th Congress, 1st Session, June 19, 2001)). In FY 2002 and each year until FY 2006, the Service has had to use virtually the entire critical habitat subcap to address court-mandated designations of critical habitat, and consequently none of the critical habitat subcap funds have been available for other listing activities. In FY 2007, we were able to use some of the critical habitat subcap funds to fund proposed listing determinations for high-priority candidate species. In FY 2009, while we were unable to use any of the critical habitat subcap funds to fund proposed listing determinations, we did use some of this money to fund the critical habitat portion of some proposed listing determinations so that the proposed listing determination and proposed critical habitat designation could be combined into one rule, thereby being more efficient in our work. In FY 2010, we are using some of the critical habitat subcap funds to fund actions with statutory deadlines.

Thus, through the listing cap, the critical habitat subcap, and the amount of funds needed to address court-mandated critical habitat designations, Congress and the courts have in effect determined the amount of money available for other listing activities. Therefore, the funds in the listing cap, other than those needed to address court-mandated critical habitat for already-listed species, set the limits on our determinations of preclusion and expeditious progress.

Congress identified the availability of resources as the only basis for deferring the initiation of a rulemaking that is warranted. The Conference Report accompanying Public Law 97–304, which established the current statutory deadlines and the warranted-but-precluded finding, states that the amendments were "not intended to allow the Secretary to delay commencing the rulemaking process for any reason other than that the existence of pending or imminent proposals to list species subject to a greater degree of threat would make allocation of resources to such a petition [that is, for a lower-ranking species] unwise." Although that statement appeared to refer specifically to the "to the maximum extent practicable" limitation on the 90-day deadline for making a "substantial information" finding, that finding is made at the point when the Service is deciding whether or not to commence a status review that will determine the degree of threats facing the species, and therefore the analysis underlying the statement is more relevant to the use of the warranted-but-precluded finding, which is made when the Service has already determined the degree of threats facing the species and is deciding whether or not to commence a rulemaking.

In FY 2010, expeditious progress is that amount of work that can be achieved with \$10,471,000, which is the amount of money that Congress appropriated for the Listing Program (that is, the portion of the Listing Program funding not related to critical habitat designations for species that are already listed). However these funds are not enough to fully fund all our court-ordered and statutory listing actions in FY 2010, so we are using \$1,114,417 of our critical habitat subcap funds in order to work on all of our required petition findings and listing determinations. This brings the total amount of funds we have for listing actions in FY 2010 to \$11,585,417. Our process is to make our determinations of preclusion on a nationwide basis to ensure that the species most in need of listing will be addressed first and also because we allocate our listing budget on a nationwide basis. The \$11,585,417 is being used to fund work in the following categories: compliance with court orders and court-approved settlement agreements requiring that petition findings or listing determinations be completed by a specific date; section 4 (of the Act) listing actions with absolute statutory deadlines; essential litigation-related, administrative, and listing program-

management functions; and high-priority listing actions for some of our candidate species. In 2009, the responsibility for listing foreign species under the Act was transferred from the Division of Scientific Authority, International Affairs Program, to the Endangered Species Program. Starting in FY 2010, a portion of our funding is being used to work on the actions described above as they apply to listing actions for foreign species. This has the potential to further reduce funding available for domestic listing actions. Although there are currently no foreign species issues included in our high-priority listing actions at this time, many actions have statutory or court-approved settlement deadlines, thus increasing their priority. The allocations for each specific listing action are identified in the Service's FY 2010 Allocation Table (part of our administrative record).

Based on our September 21, 1983, guidance for assigning an LPN for each candidate species (48 FR 43098), we have a significant number of species with an LPN of 2. Using this guidance, we assign each candidate an LPN of 1 to 12, depending on the magnitude of threats (high vs. moderate to low), immediacy of threats (imminent or nonimminent), and taxonomic status of the species (in order of priority: monotypic genus (a species that is the sole member of a genus); species; or part of a species (subspecies, distinct population segment, or significant portion of the range)). The lower the listing priority number, the higher the listing priority (that is, a species with an LPN of 1 would have the highest listing priority). Because of the large number of high-priority species, we have further ranked the candidate species with an LPN of 2 by using the following extinction-risk type criteria: International Union for the Conservation of Nature and Natural Resources (IUCN) Red list status/rank, Heritage rank (provided by NatureServe), Heritage threat rank (provided by NatureServe), and species currently with fewer than 50 individuals, or 4 or fewer populations. Those species with the highest IUCN rank (critically endangered), the highest Heritage rank (G1), the highest Heritage threat rank (substantial, imminent threats), and currently with fewer than 50 individuals, or fewer than 4 populations, originally comprised a group of approximately 40 candidate species ("Top 40"). These 40 candidate species have had the highest priority to receive funding to work on a proposed listing determination. As we work on

proposed and final listing rules for those 40 candidates, we apply the ranking criteria to the next group of candidates with an LPN of 2 and 3 to determine the next set of highest priority candidate species.

To be more efficient in our listing process, as we work on proposed rules for the highest priority species in the next several years, we are preparing multi-species proposals when appropriate, and these may include species with lower priority if they overlap geographically or have the same threats as a species with an LPN of 2. In addition, available staff resources are also a factor in determining high-priority species provided with funding. Finally, proposed rules for reclassification of threatened species to

endangered are lower priority, since as listed species, they are already afforded the protection of the Act and implementing regulations. However, for efficiency reasons, we may choose to work on a proposed rule to reclassify a species to endangered if we can combine this with work that is subject to a court-determined deadline.

As explained above, a determination that listing is warranted but precluded must also demonstrate that expeditious progress is being made to add and remove qualified species to and from the Lists of Endangered and Threatened Wildlife and Plants. As with our “precluded” finding, the evaluation of whether progress in adding qualified species to the Lists has been expeditious is a function of the resources available

for listing and the competing demands for those funds. (Although we do not discuss it in detail here, we are also making expeditious progress in removing species from the list under the Recovery program in light of the resource available for delisting, which is funded by a separate line item in the budget of the Endangered Species Program. During FY 2010, we have completed two proposed delisting rules and two final delisting rules.) Given the limited resources available for listing, we find that we made expeditious progress in FY 2010 in the Listing Program. This progress included preparing and publishing the following determinations:

#### FY 2010 COMPLETED LISTING ACTIONS

Publication date	Title	Actions	FR pages
10/08/2009 .....	Listing <i>Lepidium papilliferum</i> (Slickspot Peppergrass) as a Threatened Species Throughout Its Range.	Final Listing Threatened .....	74 FR 52013–52064
10/27/2009 .....	90-day Finding on a Petition to List the American Dipper in the Black Hills of South Dakota as Threatened or Endangered.	Notice of 90-day Petition Finding, Not substantial.	74 FR 55177–55180
10/28/2009 .....	Status Review of Arctic Grayling ( <i>Thymallus arcticus</i> ) in the Upper Missouri River System.	Notice of Intent To Conduct Status Review for Listing Decision.	74 FR 55524–55525
11/03/2009 .....	Listing the British Columbia Distinct Population Segment of the Queen Charlotte Goshawk Under the Endangered Species Act.	Proposed Listing Threatened .....	74 FR 56757–56770
11/03/2009 .....	Listing the Salmon-Crested Cockatoo as Threatened Throughout Its Range with Special Rule.	Proposed Listing Threatened .....	74 FR 56770–56791
11/23/2009 .....	Status Review of Gunnison Sage-grouse ( <i>Centrocercus minimus</i> ).	Notice of Intent to Conduct Status Review for Listing Decision.	74 FR 61100–61102
12/03/2009 .....	12-Month Finding on a Petition To List the Black-tailed Prairie Dog as Threatened or Endangered.	Notice of 12-month petition finding, Not warranted.	74 FR 63343–63366
12/03/2009 .....	90-Day Finding on a Petition To List Sprague's Pipit as Threatened or Endangered.	Notice of 90-day Petition Finding, Substantial	74 FR 63337–63343
12/15/2009 .....	90-Day Finding on Petitions To List Nine Species of Mussels From Texas as Threatened or Endangered With Critical Habitat.	Notice of 90-day Petition Finding, Substantial	74 FR 66260–66271
12/16/2009 .....	Partial 90-Day Finding on a Petition To List 475 Species in the Southwestern United States as Threatened or Endangered With Critical Habitat.	Notice of 90-day Petition Finding, Not substantial and Substantial.	74 FR 66865–66905
12/17/2009 .....	12-month Finding on a Petition To Change the Final Listing of the Distinct Population Segment of the Canada Lynx To Include New Mexico.	Notice of 12-month petition finding, Warranted but precluded.	74 FR 66937–66950
1/05/2010 .....	Listing Foreign Bird Species in Peru and Bolivia as Endangered Throughout Their Range.	Proposed Listing Endangered .....	75 FR 605–649
1/05/2010 .....	Listing Six Foreign Birds as Endangered Throughout Their Range.	Proposed Listing Endangered .....	75 FR 286–310
1/05/2010 .....	Withdrawal of Proposed Rule To List Cook's Petrel.	Proposed rule, withdrawal .....	75 FR 310–316
1/05/2010 .....	Final Rule To List the Galapagos Petrel and Heinroth's Shearwater as Threatened Throughout Their Ranges.	Final Listing Threatened .....	75 FR 235–250
1/20/2010 .....	Initiation of Status Review for <i>Agave aggersiana</i> and <i>Solanum conocarpum</i> .	Notice of Intent to Conduct Status Review for Listing.	75 FR 3190–3191



## FY 2010 COMPLETED LISTING ACTIONS—Continued

Publication date	Title	Actions	FR pages
2/09/2010 .....	12-month Finding on a Petition To List the American Pika as Threatened or Endangered.	Notice of 12-month petition finding, Not warranted.	75 FR 6437–6471
2/25/2010 .....	12-Month Finding on a Petition To List the Sonoran Desert Population of the Bald Eagle as a Threatened or Endangered Distinct Population Segment.	Notice of 12-month petition finding, Not warranted.	75 FR 8601–8621
2/25/2010 .....	Withdrawal of Proposed Rule To List the Southwestern Washington/Columbia River Distinct Population Segment of Coastal Cutthroat Trout ( <i>Oncorhynchus clarki clarki</i> ) as Threatened.	Withdrawal of Proposed Rule To List .....	75 FR 8621–8644
3/18/2010 .....	90-Day Finding on a Petition To List the Berry Cave Salamander as Endangered.	Notice of 90-day Petition Finding, Substantial	75 FR 13068–13071
3/23/2010 .....	90-Day Finding on a Petition To List the Southern Hickorynut Mussel ( <i>Obovaria jacksoniana</i> ) as Endangered or Threatened.	Notice of 90-day Petition Finding, Not substantial.	75 FR 13717–13720
3/23/2010 .....	90-Day Finding on a Petition To List the Striped Newt as Threatened.	Notice of 90-day Petition Finding, Substantial	75 FR 13720–13726
3/23/2010 .....	12-Month Findings for Petitions To List the Greater Sage-Grouse ( <i>Centrocercus urophasianus</i> ) as Threatened or Endangered.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 13910–14014
3/31/2010 .....	12-Month Finding on a Petition To List the Tucson Shovel-Nosed Snake ( <i>Chionactis occipitalis klauberi</i> ) as Threatened or Endangered with Critical Habitat.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 16050–16065
4/5/2010 .....	90-Day Finding on a Petition To List Thorne's Hairstreak Butterfly as Endangered.	Notice of 90-day Petition Finding, Substantial	75 FR 17062–17070
4/6/2010 .....	12-month Finding on a Petition To List the Mountain Whitefish in the Big Lost River, Idaho, as Endangered or Threatened.	Notice of 12-month petition finding, Not warranted.	75 FR 17352–17363
4/6/2010 .....	90-Day Finding on a Petition To List a Stonefly ( <i>Isoperla jewetti</i> ) and a Mayfly ( <i>Fallceon eatoni</i> ) as Threatened or Endangered with Critical Habitat.	Notice of 90-day Petition Finding, Not substantial.	75 FR 17363–17367
4/7/2010 .....	12-Month Finding on a Petition To Reclassify the Delta Smelt From Threatened to Endangered Throughout Its Range.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 17667–17680
4/13/2010 .....	Determination of Endangered Status for 48 Species on Kauai and Designation of Critical Habitat.	Final Listing Endangered .....	75 FR 18959–19165
4/15/2010 .....	Initiation of Status Review of the North American Wolverine in the Contiguous United States.	Notice of Initiation of Status Review for Listing Decision.	75 FR 19591–19592
4/15/2010 .....	12-Month Finding on a Petition To List the Wyoming Pocket Gopher as Endangered or Threatened with Critical Habitat.	Notice of 12-month petition finding, Not warranted.	75 FR 19592–19607
4/16/2010 .....	90-Day Finding on a Petition To List a Distinct Population Segment of the Fisher in Its United States Northern Rocky Mountain Range as Endangered or Threatened with Critical Habitat.	Notice of 90-day Petition Finding, Substantial	75 FR 19925–19935
4/20/2010 .....	Initiation of Status Review for Sacramento Splittail ( <i>Pogonichthys macrolepidotus</i> ).	Notice of Initiation of Status Review for Listing Decision.	75 FR 20547–20548
4/26/2010 .....	90-Day Finding on a Petition To List the Harlequin Butterfly as Endangered.	Notice of 90-day Petition Finding, Substantial	75 FR 21568–21571
4/27/2010 .....	12-Month Finding on a Petition To List Susan's Purse-making Caddisfly ( <i>Ochrotrichia susanae</i> ) as Threatened or Endangered.	Notice of 12-month petition finding, Not warranted.	75 FR 22012–22025
4/27/2010 .....	90-day Finding on a Petition To List the Mohave Ground Squirrel as Endangered with Critical Habitat.	Notice of 90-day Petition Finding, Substantial	75 FR 22063–22070
5/4/2010 .....	90-Day Finding on a Petition To List Hermes Copper Butterfly as Threatened or Endangered.	Notice of 90-day Petition Finding, Substantial	75 FR 23654–23663
6/1/2010 .....	90-Day Finding on a Petition To List <i>Castanea pumila</i> var. <i>ozarkensis</i> .	Notice of 90-day Petition Finding, Substantial	75 FR 30313–30318
6/1/2010 .....	12-month Finding on a Petition To List the White-tailed Prairie Dog as Endangered or Threatened.	Notice of 12-month petition finding, Not warranted.	75 FR 30338–30363

## FY 2010 COMPLETED LISTING ACTIONS—Continued

Publication date	Title	Actions	FR pages
6/9/2010 .....	90-Day Finding on a Petition To List van Rossem's Gull-billed Tern as Endangered or Threatened.	Notice of 90-day Petition Finding, Substantial	75 FR 32728–32734
6/16/2010 .....	90-Day Finding on Five Petitions To List Seven Species of Hawaiian Yellow-faced Bees as Endangered.	Notice of 90-day Petition Finding, Substantial	75 FR 34077–34088
6/22/2010 .....	12-Month Finding on a Petition To List the Least Chub as Threatened or Endangered.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 35398–35424
6/23/2010 .....	90-Day Finding on a Petition To List the Honduran Emerald Hummingbird as Endangered.	Notice of 90-day Petition Finding, Substantial	75 FR 35746–35751
6/23/2010 .....	Listing <i>Ipomopsis polyantha</i> (Pagosa Skyrocket) as Endangered Throughout Its Range, and Listing <i>Penstemon debilis</i> (Parachute Beardtongue) and <i>Phacelia submutica</i> (DeBeque Phacelia) as Threatened Throughout Their Range.	Proposed Listing Endangered Proposed Listing Threatened.	75 FR 35721–35746
6/24/2010 .....	Listing the Flying Earwig Hawaiian Damselfly and Pacific Hawaiian Damselfly As Endangered Throughout Their Ranges.	Final Listing Endangered .....	75 FR 35990–36012
6/24/2010 .....	Listing the Cumberland Darter, Rush Darter, Yellowcheek Darter, Chucky Madtom, and Laurel Dace as Endangered Throughout Their Ranges.	Proposed Listing Endangered .....	75 FR 36035–36057
6/29/2010 .....	Listing the Mountain Plover as Threatened ....	Reinstatement of Proposed Listing Threatened.	75 FR 37353–37358
7/20/2010 .....	90-Day Finding on a Petition To List <i>Pinus albicaulis</i> (Whitebark Pine) as Endangered or Threatened with Critical Habitat.	Notice of 90-day Petition Finding, Substantial	75 FR 42033–42040
7/20/2010 .....	12-Month Finding on a Petition To List the Amargosa Toad as Threatened or Endangered.	Notice of 12-month petition finding, Not warranted.	75 FR 42040–42054
7/20/2010 .....	90-Day Finding on a Petition To List the Giant Palouse Earthworm ( <i>Driloleirus americanus</i> ) as Threatened or Endangered.	Notice of 90-day Petition Finding, Substantial	75 FR 42059–42066
7/27/2010 .....	Determination on Listing the Black-Breasted Puffleg as Endangered Throughout its Range; Final Rule.	Final Listing Endangered .....	75 FR 43844–43853
7/27/2010 .....	Final Rule to List the Medium Tree-Finch ( <i>Camarhynchus pauper</i> ) as Endangered Throughout Its Range.	Final Listing Endangered .....	75 FR 43853–43864
8/3/2010 .....	Determination of Threatened Status for Five Penguin Species.	Final Listing Threatened .....	75 FR 45497–45527
8/4/2010 .....	90-Day Finding on a Petition To List the Mexican Gray Wolf as an Endangered Subspecies With Critical Habitat.	Notice of 90-day Petition Finding, Substantial	75 FR 46894–46898
8/10/2010 .....	90-Day Finding on a Petition To List <i>Arctostaphylos franciscana</i> as Endangered with Critical Habitat.	Notice of 90-day Petition Finding, Substantial	75 FR 48294–48298
8/17/2010 .....	Listing Three Foreign Bird Species from Latin America and the Caribbean as Endangered Throughout Their Range.	Final Listing Endangered .....	75 FR 50813–50842
8/17/2010 .....	90-Day Finding on a Petition To List Brian Head Mountainsnail as Endangered or Threatened with Critical Habitat.	Notice of 90-day Petition Finding, Not substantial.	75 FR 50739–50742
8/24/2010 .....	90-Day Finding on a Petition To List the Oklahoma Grass Pink Orchid as Endangered or Threatened.	Notice of 90-day Petition Finding, Substantial	75 FR 51969–51974
9/1/2010 .....	12-Month Finding on a Petition To List the White-Sided Jackrabbit as Threatened or Endangered.	Notice of 12-month petition finding, Not warranted.	75 FR 53615–53629
9/8/2010 .....	Proposed Rule To List the Ozark Hellbender Salamander as Endangered.	Proposed Listing Endangered .....	75 FR 54561–54579
9/8/2010 .....	Revised 12-Month Finding To List the Upper Missouri River Distinct Population Segment of Arctic Grayling as Endangered or Threatened.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 54707–54753
9/9/2010 .....	12-Month Finding on a Petition To List the Jemez Mountains Salamander ( <i>Plethodon neomexicanus</i> ) as Endangered or Threatened with Critical Habitat.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 54822–54845

## FY 2010 COMPLETED LISTING ACTIONS—Continued

Publication date	Title	Actions	FR pages
9/15/2010 .....	12-Month Finding on a Petition To List Sprague's Pipit as Endangered or Threatened Throughout Its Range.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 56028–56050
9/22/2010 .....	12-Month Finding on a Petition To List <i>Agave eggersiana</i> (no common name) as Endangered.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 57720–57734
9/28/2010 .....	Determination of Endangered Status for the African Penguin.	Final Listing Endangered .....	75 FR 59645–59656
9/28/2010 .....	Determination for the Gunnison Sage-grouse as a Threatened or Endangered Species.	Notice of 12-month petition finding, Warranted but precluded.	75 FR 59803–59863
9/30/2010 .....	12-Month Finding on a Petition To List the Pygmy Rabbit as Endangered or Threatened.	Notice of 12-month petition finding, Not warranted.	75 FR 60515–60561

Our expeditious progress also includes work on listing actions that we funded in FY 2010 but have not yet been completed to date. These actions are listed below. Actions in the top section of the table are being conducted under a deadline set by a court. Actions in the middle section of the table are being conducted to meet statutory

timelines, that is, timelines required under the Act. Actions in the bottom section of the table are high-priority listing actions. These actions include work primarily on species with an LPN of 2, and selection of these species is partially based on available staff resources, and when appropriate, include species with a lower priority if

they overlap geographically or have the same threats as the species with the high priority. Including these species together in the same proposed rule results in considerable savings in time and funding, as compared to preparing separate proposed rules for each of them in the future.

## ACTIONS FUNDED IN FY 2010 BUT NOT YET COMPLETED

Species	Action
<b>Actions Subject to Court Order/Settlement Agreement</b>	
6 Birds from Eurasia .....	Final listing determination.
Flat-tailed horned lizard .....	Final listing determination.
Mountain plover <sup>4</sup> .....	Final listing determination.
6 Birds from Peru .....	Proposed listing determination.
Sacramento splittail .....	12-month petition finding.
Pacific walrus .....	12-month petition finding.
Wolverine .....	12-month petition finding.
<i>Solanum conocarpum</i> .....	12-month petition finding.
Desert tortoise—Sonoran population .....	12-month petition finding.
Thorne's Hairstreak butterfly <sup>3</sup> .....	12-month petition finding.
Hermes copper butterfly <sup>3</sup> .....	12-month petition finding.
<b>Actions with Statutory Deadlines</b>	
Casey's June beetle .....	Final listing determination.
Georgia pigtoe, interrupted rocksnail, and rough hornsnail .....	Final listing determination.
7 Bird species from Brazil .....	Final listing determination.
Southern rockhopper penguin—Campbell Plateau population .....	Final listing determination.
5 Bird species from Colombia and Ecuador .....	Final listing determination.
Queen Charlotte goshawk .....	Final listing determination.
5 species southeast fish (Cumberland darter, rush darter, yellowcheek darter, chucky madtom, and laurel dace).	Final listing determination.
Salmon crested cockatoo .....	Proposed listing determination.
CA golden trout .....	12-month petition finding.
Black-footed albatross .....	12-month petition finding.
Mount Charleston blue butterfly .....	12-month petition finding.
Mojave fringe-toed lizard <sup>1</sup> .....	12-month petition finding.
Kokanee—Lake Sammamish population <sup>1</sup> .....	12-month petition finding.
Cactus ferruginous pygmy-owl <sup>1</sup> .....	12-month petition finding.
Northern leopard frog .....	12-month petition finding.
Tehachapi slender salamander .....	12-month petition finding.
Coqui Llanero .....	12-month petition finding.
Dusky tree vole .....	12-month petition finding.
3 MT invertebrates (mist forestfly ( <i>Lednia tumana</i> ), <i>Oreohelix</i> sp. 3, <i>Oreohelix</i> sp. 31) from 206 species petition.	12-month petition finding.
5 UT plants ( <i>Astragalus hamiltonii</i> , <i>Eriogonum soredium</i> , <i>Lepidium ostleri</i> , <i>Penstemon flowersii</i> , <i>Trifolium friscanum</i> ) from 206 species petition.	12-month petition finding.
2 CO plants ( <i>Astragalus microcymbus</i> , <i>Astragalus schmollii</i> ) from 206 species petition .....	12-month petition finding.

## ACTIONS FUNDED IN FY 2010 BUT NOT YET COMPLETED—Continued

Species	Action
5 WY plants ( <i>Abronia ammophila</i> , <i>Agrostis rossiae</i> , <i>Astragalus proimanthus</i> , <i>Boechere (Arabis) pusilla</i> , <i>Penstemon gibbensii</i> ) from 206 species petition.	12-month petition finding.
Leatherside chub (from 206 species petition)	12-month petition finding.
Frigid ambersnail (from 206 species petition)	12-month petition finding.
Gopher tortoise—eastern population	12-month petition finding.
Wrights marsh thistle	12-month petition finding.
67 of 475 southwest species	12-month petition finding.
Grand Canyon scorpion (from 475 species petition)	12-month petition finding.
<i>Anacroneuria wipukupa</i> (a stonefly from 475 species petition)	12-month petition finding.
Rattlesnake-master borer moth (from 475 species petition)	12-month petition finding.
3 Texas moths ( <i>Ursia furtiva</i> , <i>Sphingicampa blanchardi</i> , <i>Agapema galbina</i> ) (from 475 species petition)	12-month petition finding.
2 Texas shiners ( <i>Cyprinella</i> sp., <i>Cyprinella lepida</i> ) (from 475 species petition)	12-month petition finding.
3 South Arizona plants ( <i>Erigeron piscaticus</i> , <i>Astragalus hypoxylus</i> , <i>Amoreuxia gonzalezii</i> ) (from 475 species petition).	12-month petition finding.
5 Central Texas mussel species (3 from 475 species petition)	12-month petition finding.
14 parrots (foreign species)	12-month petition finding.
Berry Cave salamander <sup>1</sup>	12-month petition finding.
Striped newt <sup>1</sup>	12-month petition finding.
Fisher—Northern Rocky Mountain Range <sup>1</sup>	12-month petition finding.
Mohave ground squirrel <sup>1</sup>	12-month petition finding.
Puerto Rico harlequin butterfly	12-month petition finding.
Western gull-billed tern	12-month petition finding.
Ozark chinquapin ( <i>Castanea pumila</i> var. <i>ozarkensis</i> )	12-month petition finding.
HI yellow-faced bees	12-month petition finding.
Giant Palouse earthworm	12-month petition finding.
Whitebark pine	12-month petition finding.
OK grass pink ( <i>Calopogon oklahomensis</i> ) <sup>1</sup>	12-month petition finding.
Southeastern pop snowy plover & wintering pop. of piping plover <sup>1</sup>	90-day petition finding.
Eagle Lake trout <sup>1</sup>	90-day petition finding.
Smooth-billed ani <sup>1</sup>	90-day petition finding.
Bay Springs salamander <sup>1</sup>	90-day petition finding.
32 species of snails and slugs <sup>1</sup>	90-day petition finding.
42 snail species (Nevada & Utah)	90-day petition finding.
Red knot <i>roselaari</i> subspecies	90-day petition finding.
Peary caribou	90-day petition finding.
Plains bison	90-day petition finding.
Spring Mountains checkerspot butterfly	90-day petition finding.
Spring pygmy sunfish	90-day petition finding.
Bay skipper	90-day petition finding.
Unsilvered fritillary	90-day petition finding.
Texas kangaroo rat	90-day petition finding.
Spot-tailed earless lizard	90-day petition finding.
Eastern small-footed bat	90-day petition finding.
Northern long-eared bat	90-day petition finding.
Prairie chub	90-day petition finding.
10 species of Great Basin butterfly	90-day petition finding.
6 sand dune (scarab) beetles	90-day petition finding.
Golden-winged warbler	90-day petition finding.
Sand-verbena moth	90-day petition finding.
404 Southeast species	90-day petition finding.

High-Priority Listing Actions<sup>3</sup>

19 Oahu candidate species <sup>2</sup> (16 plants, 3 damselflies) (15 with LPN = 2, 3 with LPN = 3, 1 with LPN = 9).	Proposed listing.
19 Maui-Nui candidate species <sup>2</sup> (16 plants, 3 tree snails) (14 with LPN = 2, 2 with LPN = 3, 3 with LPN = 8).	Proposed listing.
Dune sagebrush lizard (formerly Sand dune lizard) <sup>3</sup> (LPN = 2)	Proposed listing.
2 Arizona springsnails <sup>2</sup> ( <i>Pyrgulopsis bernadina</i> (LPN = 2), <i>Pyrgulopsis trivialis</i> (LPN = 2))	Proposed listing.
New Mexico springsnail <sup>2</sup> ( <i>Pyrgulopsis chupaderae</i> (LPN = 2))	Proposed listing.
2 mussels <sup>2</sup> (rayed bean (LPN = 2), snuffbox No LPN)	Proposed listing.
2 mussels <sup>2</sup> (sheepnose (LPN = 2), spectaclecase (LPN = 4))	Proposed listing.
Altamaha spiny mussel <sup>2</sup> (LPN = 2)	Proposed listing.
8 southeast mussels (southern kidneyshell (LPN = 2), round ebonyshell (LPN = 2), Alabama pearlshell (LPN = 2), southern sandshell (LPN = 5), fuzzy pigtoe (LPN = 5), Choctaw bean (LPN = 5), narrow pigtoe (LPN = 5), and tapered pigtoe (LPN = 11)).	Proposed listing.

<sup>1</sup> Funds for listing actions for these species were provided in previous FYs.<sup>2</sup> Although funds for these high-priority listing actions were provided in FY 2008 or 2009, due to the complexity of these actions and competing priorities, these actions are still being developed.<sup>3</sup> Partially funded with FY 2010 funds; also will be funded with FY 2011 funds.<sup>4</sup> Funded with FY 2010 funds.

We have endeavored to make our listing actions as efficient and timely as possible, given the requirements of the relevant law and regulations, and constraints relating to workload and personnel. We are continually considering ways to streamline processes or achieve economies of scale, such as by batching related actions together. Given our limited budget for implementing section 4 of the Act, these actions described above collectively constitute expeditious progress.

*Cirsium wrightii* will be added to the list of candidate species upon publication of this 12-month finding. We will continue to monitor the status of this species as new information becomes available. This review will

determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

We intend that any proposed listing action for *Cirsium wrightii* will be as accurate as possible. Therefore, we will continue to accept additional information and comments from all concerned governmental agencies, the scientific community, industry, or any other interested party concerning this finding.

#### References Cited

A complete list of all references cited in this finding is available on the Internet at <http://www.regulations.gov> or upon request from the Field

Supervisor, New Mexico Ecological Services Office (*see ADDRESSES* section).

#### Authors

The primary authors of this rule are the staff members of the New Mexico Ecological Services Office.

#### Authority

The authority for this section is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: October 13, 2010.

**Daniel M. Ashe,**

*Acting Director, Fish and Wildlife Service.*

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