CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Rana luteiventris*

COMMON NAME: Columbia spotted frog, Great Basin population

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: February 1, 2003

STATUS/ACTION:
__ New candidate
_X_ Continuing candidate
___ Non-petitioned
_X_ Petitioned - Date petition received: May1, 1989
_X_ 90-day positive - FR date: October 17, 1989
_X_ 12-month warranted but precluded - FR date: April 23, 1993
Listing priority change
Former LP:_____
New LP:__
Latest date species first became a Candidate: April 23, 1993
___ Candidate removal: Former LP: ___
___ A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.
___ F - Range is no longer a U.S. territory.
___ M - Taxon mistakenly included in past notice of review.
___ N - Taxon may not meet the Act=s definition of Aspecies.@
___ X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Class Amphibia; Family Ranidae (True frogs)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Nevada, Idaho, and Oregon

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Nevada, Idaho, and Oregon

LEAD REGION CONTACT: Diane Elam (CNO), 916-414-6464; Scott McCarthy (RO), 503-231-6131

LEAD FIELD OFFICE CONTACT: Nevada Fish and Wildlife Office, Chad Mellison or Mark Maley, 775-861-6300

BIOLOGICAL INFORMATION:

Species Description

Ranids typically are characterized as slim-waisted, long-legged, smooth-skinned jumpers with webbed hind feet and usually with a pair of dorsolateral folds (glandular folds) that extend from behind the eyes to the lower back. Adult Columbia spotted frogs (*Rana luteiventris*) in Nevada measure approximately 5.6 centimeters (2.2 inches) from snout to vent, with females being larger than males. Dorsal color and pattern include a light brown, dark brown, or gray, with small spots. Ventral coloration can differ among geographic population units and may range from yellow to salmon, however, very young individuals may have very pale, almost white, ventral surfaces. The throat and the ventral region are sometimes mottled. The head may have a dark mask with a light stripe on the upper jaw and the eyes are turned slightly upward. Male frogs have swollen thumbs with darkened bases.

Columbia spotted frogs are similar to, and often are mistaken for, leopard frogs (*R. pipiens*). Specific characteristics that distinguish the Columbia spotted frogs from the leopard frog include: rough skin, shorter limbs (the heel of the hind limb when adpressed seldom reaches the nostrils), larger webs between the toes, smaller typanum, and the smooth round eyes which are turned slightly upward. Distinguishing characteristics of the leopard frog are very large conspicuous spots and a mostly white ventral surface compared to the pigmented ventral surfaces of adult Columbia spotted frogs (Stebbins 1985).

Taxonomy

The Service acknowledges species-specific genetic and geographic differences in Columbia spotted frogs based on Green (1991), Green et al. (1996, 1997), and Bos and Sites (2001), which defines populations in western Washington and Oregon and northeastern California as Oregon spotted frogs (*R. pretiosa*) and the remainder of the populations as Columbia spotted frogs. Based on further geographic and genetic characterization, Columbia spotted frogs in Idaho, eastern Oregon, and Nevada are part of the Great Basin population of Columbia spotted frogs. A small population on the eastern border of White Pine County, Nevada and Toole County, Utah, has been determined through morphometric and allozyme data (Green et al. 1996, 1997) to be part of the West Desert population of Columbia spotted frogs and is not part of the Great Basin population discussed in this document.

Habitat

Columbia spotted frogs are found closely associated with clear, slow-moving or ponded surface waters, with little shade (Reaser 1997). Reproducing populations have been found in habitats characterized by springs, floating vegetation, and larger bodies of pooled water (e.g., oxbows, lakes, stock ponds, beaver-created ponds, seeps in wet meadows, backwaters) (Idaho Department of Fish and Game (IDFG) et al. 1995; Reaser 1997). A deep silt or muck substrate may be required for hibernation and torpor (Morris and Tanner 1969). In colder portions of their range, Columbia spotted frogs will use areas where water does not freeze, such as spring heads and undercut stream banks with overhanging vegetation (IDFG et al. 1995). Females may lay only one egg mass per year; yearly fluctuations in the sizes of egg masses are extreme (Utah Division of Wildlife Resources 1998). Successful egg production and the viability and metamorphosis of

Columbia spotted frogs are susceptible to habitat variables such as temperature, depth, and pH of water, cover, and the presence/absence of predators (e.g., fishes and bullfrogs) (Morris and Tanner 1969; Munger et al. 1996; Reaser 1996b).

Distribution

Nevada

Columbia spotted frogs in Nevada are found in the central (Nye County) and northeastern (Elko and Eureka Counties) parts of the state, usually at elevations between 1,700 and 2,650 meters (5,600 and 8,700 feet), although they have been recorded historically in a broader range including Lander County in central Nevada and Humboldt County in northwest Nevada (Reaser 2000). The Great Basin population of Columbia spotted frogs in Nevada is geographically separated into three distinct subpopulations; the Jarbidge-Independence Range, Ruby Mountains, and Toiyabe Mountains subpopulations.

The largest of Nevada's three subpopulation areas is the Jarbidge-Independence Range in Elko and Eureka counties. This subpopulation area is formed by the headwaters of streams in two major hydrographic basins. The South Fork Owyhee, Owyhee, Bruneau, and Salmon Falls drainages flow north into the Snake River basin. Marys River, North Fork of the Humboldt, and Maggie Creek drain into the interior Humboldt River basin. The Jarbidge-Independence Range subpopulation is considered to be genetically and geographically most closely associated with Columbia spotted frogs in southern Idaho (Reaser 1997).

Columbia spotted frogs occur in the Ruby Mountains in the areas of Green Mountain, Smith, and Rattlesnake creeks on lands in Elko County managed by the U.S. Forest Service (Forest Service). Although geographically, Ruby Mountains Columbia spotted frogs are close to the Jarbidge-Independence Range subpopulation, preliminary allozyme evidence suggests they are genotypically different (J. Reaser, consultant, pers. comm., 1998). The Ruby Mountains subpopulation is considered discrete because of this difference (J. Reaser, consultant, pers. comm., 1998) and because it is geographically isolated from the Jarbidge-Independence Range subpopulation area to the north by an undetermined barrier (e.g., lack of suitable habitat, connectivity, and/or predators), and from the Toiyabe Mountains subpopulation area to the southwest by a large gap in suitable Humboldt River drainage habitat.

In the Toiyabe Range, Columbia spotted frogs are found in seven drainages in Nye County, Nevada; the Reese River (Upper and Lower), Cow and Ledbetter Canyons, and Cloverdale, Stewart, Illinois, and Indian Valley Creeks. Although historically they also occurred in Lander County, preliminary surveys have found them absent from this area (J. Tull, Forest Service, Ely Ranger District, pers. comm., 1998). The Toiyabe Mountains subpopulation is geographically isolated from the Ruby Mountains and Jarbidge-Independence Range subpopulations by a large gap in suitable habitat and they represent *R. luteiventris* in the southern-most extremity of its range. Genetic analyses of Columbia spotted frogs from the Toiyabe Range suggest that these frogs are distinctive in comparison to frogs from the Ruby Mountains and Jarbidge-Independence Range subpopulation areas (Green et al. 1996, 1997; J. Reaser, consultant, pers. comm., 1998). Genetic (mtDNA) differences between the Toiyabe Range frogs

and the Ruby Mountains frogs are less than those between the Toiyabe Range frogs and the Jarbidge-Independence Range frogs, but this may be because of similar temporal and spatial isolation (J. Reaser, consultant, pers. comm., 1998).

Idaho and Oregon

Historically, the range of the Columbia spotted frog in Idaho included the Raft River and Goose Creek drainages in Minidoka County and the Owyhee Mountains in Owyhee County in southern Idaho. In eastern Oregon, the historic range of Columbia spotted frogs included the Blue and Wallowa Mountains in Wallowa County and the Owyhee Mountains in Malheur County. Surveys conducted in the Raft River and Goose Creek drainages in Idaho failed to relocate Columbia spotted frogs (Reaser 1997; Shipman and Anderson 1997; Turner 1962). In 1994 and 1995, the Bureau of Land Management (BLM) conducted surveys in the Jarbidge and Snake River Resource Areas in Twin Falls County, Idaho. These efforts were also unsuccessful in locating Columbia spotted frogs (McDonald 1996). Only 6 historical sites were known in the Owyhee Mountain range in Idaho, and only 11 sites were known in southeastern Oregon in Malheur County prior to 1995 (Munger et al. 1996).

Currently, Columbia spotted frogs appear to be widely distributed throughout southwestern Idaho (mainly in Owyhee County) and eastern Oregon, but local populations within this general area appear to be isolated from each other by either natural or human induced habitat disruptions. The largest local population of Columbia spotted frogs in Idaho occurs in Owyhee County in the Rock Creek drainage. The largest local population of Columbia spotted frogs in Oregon occurs in Malheur County in the Dry Creek drainage.

Nevada

Declines of Columbia spotted frog populations in Nevada have been recorded since 1962 when it was observed that in many Elko County localities where Columbia spotted frogs were once numerous, the species was nearly extirpated (Turner 1962). Extensive loss of habitat was found to have occurred from conversion of wetland habitats to irrigated pasture and spring and stream de-watering by mining and irrigation practices. In addition, there was evidence of extensive impacts on riparian habitats due to intensive livestock grazing. Recent work by researchers in Nevada have documented the loss of historically known sites, reduced numbers of individuals within local populations, and declines in the reproduction of those individuals (Hovingh 1990; Reaser 1996a, 1996b, 1997). Surveys in Nevada between 1994 and 1996 indicated that 54 percent of surveyed sites known to have frogs before 1993 no longer supported individuals (Reaser 1997).

Little historical or recent data are available for the largest subpopulation area in Nevada, the Jarbidge-Independence Range. Presence/absence surveys have been conducted by Stanford University, University of Nevada, Reno, and Brigham Young University researchers, and the Forest Service, but dependable information on numbers of breeding adults and trends is unavailable. Between 1993 and 1998, 976 sites were surveyed for the presence of Columbia spotted frogs in northeastern Nevada, including the Ruby Mountains subpopulation area (Shipman and Anderson 1997; Reaser 2000). Of these, 746 sites (76 percent) that were believed

to have characteristics suitable for frogs were unoccupied. For these particular sites there is no information on historical presence of Columbia spotted frogs. Of 212 sites that were known to support frogs before 1992, 107 (50 percent) no longer had frogs, while 105 sites did support frogs. At the occupied sites, surveyors observed more than 10 adults at only 13 sites (12 percent). Frogs in this area appear widely distributed (Reaser 1997). No monitoring or surveying took place in northeastern Nevada from1998 through 2001. The Forest Service resumed amphibian surveys during the summer of 2002. Crews went back to previously surveyed sites that were identified during the survey effort from 1993-1998 (W. Amy, Forest Service, Ruby Mountain Ranger District, pers. comm., 2003). Of the 168 sites visited, Columbia spotted frogs were present at 58 sites (34 percent). Columbia spotted frogs were not detected at the remaining 110 sites (66 percent).

Between 1993 and 1998, 339 sites were surveyed for the presence of Columbia spotted frogs in the Toiyabe Range. Surveyors visited 118 sites (35 percent) with suitable habitat characteristics where no frogs were present. Ten historic frog sites no longer had frogs when surveyed by Reaser between 1993 and 1996 (Reaser 1997). However, at 211 other historic sites, frogs were still present during this survey period. Of these 211 sites, surveyors reported greater than 10 adult frogs at 133 sites (63 percent) (Reaser 1997). During the summers of 2000 and 2001, mark-recapture surveys of the Toiyabe Range subpopulation were conducted by the University of Nevada, Reno. Preliminary estimates of frog numbers in the Indian Valley Creek drainage were around 5,000 breeding individuals, which is greater than previously believed (K. Hatch, University of Nevada, Reno, pers. comm., 2001). However, during the 2000-2001 winter, Hatch et al. (2002) noted a large population decrease, ranging between 66 and 86.5 percent at several sites. Preliminary results suggest anoxia as the cause of death, however, more research is being proposed to help understand this apparent winterkill (Hatch et al. 2002). During the summer of 2002, amphibian surveys were conducted by Brigham Young University (K. Hatch, pers. comm., 2003). Sites from the 1998 survey effort were revisited. Of the 33 sites which contained frogs in 1998, Columbia spotted frogs were still present 22 sites (67 percent). Columbia spotted frogs were not detected at the remaining 11 sites (33 percent). Lack of standardized or extensive monitoring and routine surveying has prevented dependable determinations of frog population numbers or trends in Nevada.

Status

Idaho and Oregon

Extensive surveys since 1996 throughout southern Idaho and eastern Oregon, have led to increases in the number of known Columbia spotted frog sites. Although efforts to survey for Columbia spotted frogs have increased the available information regarding known species locations, most of these data suggest the sites support small numbers of frogs. Of the 49 known local populations in southern Idaho, 61 percent had 10 or fewer adult frogs and 37 percent had 100 or fewer adult frogs (Engle 2000; Idaho Conservation Data Center (ICDC) 2000). The largest known local population of Columbia spotted frogs occurs in the Rock Creek drainage of Owyhee County and supports under 250 adult frogs (Engle 2000). Extensive monitoring at 10 of the 46 occupied sites since 1997 indicates a general decline in the number of adult Columbia spotted frogs encountered (Engle 2000; Engle and Munger 2000; Engle 2002a). All known local populations in southern Idaho appear to be functionally isolated (Engle 2000; Engle and Munger 2000). Boise State University continued doing research during the summer of 2002 but we have not yet received results from the research.

Of the16 sites that are known to support Columbia spotted frogs in eastern Oregon, 81 percent of these sites appear to support fewer than 10 adult Columbia spotted frogs. In southeastern Oregon, surveys conducted in 1997 found a single population of Columbia spotted frogs in the Dry Creek drainage of Malheur County. Population estimates for this site are under 300 adult frogs (Munger et al. 1996). Population estimates could not be made from the 2002 survey because of equipment failure. However, recruitment did occur and all life stages were present (Engle 2002b). Monitoring (since 1998) of Columbia spotted frogs in northeastern Oregon in Wallowa County indicates relatively stable, small local populations (less than five adults encountered) (Pearl 2000). All of the known local populations of Columbia spotted frogs in eastern Oregon appear to be functionally isolated.

The United States Geological Survey finished a 3-year study to compare current regional distributions of amphibians with occurrence patterns suggested in historical data (Wente and Adams 2003). Visual encounter surveys were used to determine current presence/absence of Columbia spotted frogs on public lands in eastern Oregon and northern Nevada. Crews detected Columbia spotted frogs at 13 of 20 (65 percent) historical sites visited in 2002. Columbia spotted frogs were detected at 6 of 12 sites (50 percent) in 2001, and 3 of 10 sites (30 percent) in 2000. Thirteen sites were visited in more than 1 year and four of these switched occupancy status (31 percent). In Nevada, only 1 of 12 (8 percent) of sites that had water also hosted Columbia spotted frogs. Crews visited a small number of potential sites for this species and detected Columbia spotted frogs in at least one site each year. Columbia spotted frogs were present at 4 of 9 sites in 2002, 1 of 4 in 2001, and 2 of 11 sites in 2000. Five of these potential sites were visited in more than 1 year and detected occupancy changed for three of them. Variability in occupancy between the 3 years, however, is problematic.

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

Columbia spotted frog habitat degradation and fragmentation is probably a combined result of past and current influences of heavy livestock grazing, spring development, agricultural development, urbanization, and mining activities. These activities eliminate vegetation necessary to protect frogs from predators and UV-B radiation (Kiesecker and Blaustein 1995; Blaustein et al. 1997); reduce soil moisture; create undesirable changes in water temperature, chemistry and water availability; and can cause restructuring of habitat zones through trampling, rechanneling, or degradation which in turn can negatively affect the available invertebrate food source (IDFG et al. 1995; Munger et al. 1997; Reaser 1997; Engle and Munger 2000; Engle 2002a). Columbia spotted frog habitat occurs in the same areas where these activities are likely to take place or where these activities occurred in the past and resulting habitat degradation has not improved over time. Natural fluctuations in environmental conditions tend to magnify the detrimental effects of these activities, just as the activities may also magnify the detrimental effects of natural environmental events.

Springs provide a stable, permanent source of water for frog breeding, feeding, and winter refugia (IDFG et al. 1995). Springs provide deep, protected areas that serve as hibernacula for Columbia spotted frogs in cold climates. Springs also provide protection from predation through underground openings (IDFG et al. 1995; Patla and Peterson 1996). Most spring developments result in the installation of a pipe or box to fully capture the water source and direct water to another location such as a livestock-watering trough. Loss of this permanent source of water in desert ecosystems can also lead to the loss of associated riparian habitats and wetlands used by Columbia spotted frogs. Developed spring pools could be functioning as attractive nuisances for frogs, concentrating them into isolated groups, increasing the risk of disease and predation (Engle 2001). Many of the springs in southern Idaho, eastern Oregon, and Nevada have been developed.

The reduction of beaver populations has been noted as an important feature in the reduction of suitable habitat for Columbia spotted frogs. Beaver are important in the creation of small pools with slow-moving water that function as habitat for frog reproduction and create wet meadows that provide foraging habitat and protective vegetation cover, especially in the dry interior western United States (St. John 1994). Beaver trapping is still common in Idaho and harvest is unregulated in most areas (IDFG et al. 1995). In some areas, beavers are removed because of a perceived threat to water for agriculture or horticultural plantings. As indicated above, permanent ponded waters are important in maintaining Columbia spotted frog habitats during severe drought or winter periods. Removal of a beaver dam in Stoneman Creek in Idaho is believed to have been directly related to the decline of a Columbia spotted frog subpopulation. Intensive surveying of the historical site where frogs were known to have occurred has documented only one adult Columbia spotted frog (Engle 2000).

Fragmentation of habitat may be one of the most significant barriers to Columbia spotted frog recovery and population persistence (Semlitsch 2002). Recent studies in Idaho indicate that Columbia spotted frogs exhibit breeding site fidelity (Patla and Peterson 1996; Engle 2000; Munger and Engle 2000; J. Engle, IDFG, pers. comm., 2001). Movement of frogs from hibernation ponds to breeding ponds may be impeded by zones of unsuitable habitat. As movement corridors become more fragmented through loss of flows within riparian or meadow habitats, local populations will become more isolated (Engle 2000; Engle 2001). Vegetation and surface water along movement corridors provide relief from high temperatures and arid environmental conditions, as well as protection from predators. Loss of vegetation and/or lowering of the water table as a result of the above mentioned activities can pose a significant threat to frogs moving from one area to another. Likewise, fragmentation and loss of habitat can prevent frogs from colonizing suitable sites elsewhere (Gibbs 2000; Snodgrass et al. 2000; Semlitsch 2002).

Though direct correlation between Columbia spotted frog declines and livestock grazing has not been studied, the effects of heavy grazing on riparian areas are well documented (Kauffman et al. 1982; Kauffman and Kreuger 1984; Skovlin 1984; Kauffman et al. 1985; Schulz and Leininger 1990). Heavy grazing in riparian areas on state and private lands is a chronic problem throughout the Great Basin. In the fall of 2000, 250 head of cattle were allowed to graze for 45 days on one pasture in the Indian Valley Creek drainage of the Humboldt-Toiyabe National Forest in central Nevada for the first time in 6 years (M. Croxen, Forest Service, Tonopah Ranger District, pers. comm., 2002). Grazing was not allowed in this allotment in 2001, however, grazing resumed in 2002. Recent mark-recapture data indicated that this drainage supports more frogs than previously presumed, potentially around 5,000 individuals (K. Hatch, pers. comm., 2000). Perceived improvements in the status of frog populations in the Indian Valley Creek area may be a result of past removal of livestock grazing. The reintroduction of grazing disturbance into this relatively dense area of frogs has yet to be determined.

In the Toiyabe Range, the Bureau of Land Management fenced 3.2 kilometers (km) (2 miles (mi)) of damaged riparian area along Cloverdale Creek (to protect it from grazing) during the summer of 2002. In addition to the riparian exclosure, BLM biologists located a diversion dam in 1998 on Cloverdale Creek that was completely de-watering approximately 1.6 km (1 mi) of stream. During the summer of 2000, this area was reclaimed and water was put back into the stream. This area of the stream is not currently occupied by Columbia spotted frogs but it is historic habitat.

Grazing continues to impact riparian areas in the Northeast subpopulation in Nevada. The Forest Service has completed three riparian area protection projects in areas where Columbia spotted frogs occur. These projects include altering stocking rates or changing the grazing season in two allotments known to have frogs and constructing riparian fencing on one allotment. However, these three sites have not been monitored to determine whether efforts to protect riparian habitat and Columbia spotted frogs have been successful.

The effects of mining on Great Basin Columbia spotted frogs, specifically, have not been studied, but the adverse effects of mining activities on water quality and quantity, other wildlife species, and amphibians in particular have been addressed in professional scientific forums (Chang et al. 1974; Birge et al. 1975; Greenhouse 1976; Khangarot et al. 1985).

B. Overutilization for commercial, recreational, scientific, or educational purposes.

This is not known to be a threat to Great Basin Columbia spotted frogs at this time.

C. Disease or predation.

Predation by fishes is likely an important threat to Columbia spotted frogs. The introduction of nonnative salmonid and bass species for recreational fishing may have negatively affected frog species throughout the United States. The negative effects of predation of this kind are difficult to document, particularly in stream systems. However, significant negative effects of predation on frog populations in lacustrine systems have been documented (Hayes and Jennings 1986; Pilliod et al. 1996; Knapp and Matthews 2000). One historic site in southern Idaho no longer supports Columbia spotted frog although suitable habitat is available. This may be related to the presence of introduced bass in the Owyhee River (ICDC 2000). The stocking of nonnative fishes is common throughout waters of the Great Basin. The Nevada Division of Wildlife (NDOW) has committed to conducting stomach sampling of stocked nonnative and native species to determine the effects of predation on Columbia spotted frogs. However, this commitment will not be fulfilled until the Columbia spotted frog conservation agreements are signed. To date, NDOW has not altered fish stocking rates or locations in order to benefit Columbia spotted frogs.

The bullfrog (*R. catesbeiana*), a nonnative ranid species, occurs within the range of the Columbia spotted frog in the Great Basin. Bullfrogs are known to prey on other frogs (Hayes and Jennings 1986). They are rarely found to co-occur with Columbia spotted frogs, but whether this is an artifact of competitive exclusion is unknown at this time.

Although a diversity of microbial species is naturally associated with amphibians, it is generally accepted that they are rarely pathogenic to amphibians except under stressful environmental conditions. Chytridiomycosis (chytrid) is an emerging panzootic fungal disease in the United States (Fellers et al. 2001). Clinical signs of amphibian chytrid include abnormal posture, lethargy, and loss of righting reflex. Gross lesions, which are usually not apparent, consist of abnormal epidermal sloughing and ulceration; hemorrhages in the skin, muscle, or eye; hyperemia of digital and ventrum skin, and congestion of viscera. Diagnosis is by identification of characteristic intracellular flask-shaped sporangia and septate thalli within the epidermis. Chytrid can be identified in some species of frogs by examining the oral discs of tadpoles that may be abnormally formed or lacking pigment (Fellers et al. 2001).

Chytrid was confirmed in the Circle Pond site, Idaho, where long term monitoring since 1998 has indicated a general decline in the population (Engle 2002a). It is unclear whether the presence of this disease will eventually result in the loss of this subpopulation. Two additional sites (including Dry Creek, Malheur County, Oregon) may have chytrid, but this has yet to be determined (J. Engle, IDFG, pers. comm., 2001; Engle 2002b). Protocols to prevent further spread of the disease by researchers were instituted in 2001. Chytrid has also been found in the Wasatch Columbia spotted frog distinct population segment (K. Wilson, Utah Division of Wildlife Resources, pers. comm., 2002). Chytrid has not been found in Nevada populations of Columbia spotted frogs.

D. The inadequacy of existing regulatory mechanisms.

Columbia spotted frog occurrence sites and potential habitats occur on both public and private lands. This species is included on the Forest Service sensitive species list; as such, its management must be considered during forest planning processes. However, little habitat restoration, monitoring or surveying has occurred on Forest Service lands.

BLM policies direct management to consider candidate species on public lands under their jurisdiction. To date, BLM efforts to conserve Columbia spotted frogs and their habitat in Idaho, Oregon, and Nevada have not been adequate to address threats.

The status of local populations of Columbia spotted frogs on Yomba-Shoshone or Duck Valley Tribal lands is unknown. Tribal governments do not have regulatory or protective mechanisms in place to protect Columbia spotted frogs.

NDOW classifies the Columbia spotted frog as a protected species, but they are not afforded official protection and populations are not monitored. Though the Columbia spotted frog is on the sensitive species list for the State of Idaho, this species is not given any special protection by the State. Columbia spotted frogs are not on the sensitive species list for the State of Oregon.

Protection of wetland habitat from loss of water to irrigation or spring development is difficult because most water in the Great Basin has been allocated to water rights applicants based on historical use and spring development has already occurred within much of the known habitat of Columbia spotted frogs. Federal lands may have water rights that are approved for wildlife use, but these rights are often superceded by historic rights upstream or downstream that do not provide for minimum flows. Also, most public lands are managed for multiple-use and are subject to livestock grazing, silvicultural activities, and recreation uses that may be incompatible with Columbia spotted frog conservation without adequate mitigation measures.

E. Other natural or manmade factors affecting its continued existence.

Multiple consecutive years of less than average precipitation may result in a reduction in the number of suitable sites available to Columbia spotted frogs. Local extirpations eliminate source populations from habitats that in normal years are available as frog habitat (Lande and Barrowclough 1987; Schaffer 1987; Gotelli 1995). These climate events are likely to exacerbate the effects of other threats, thus increasing the possibility of stochastic extinction of subpopulations by reducing their size and connectedness to other subpopulations (see Factor A for additional information). As movement corridors become more fragmented, due to loss of flows within riparian or meadow habitats, local populations will become more isolated (Engle 2000). Increased fragmentation of the habitat can lead to greater loss of populations due to demographic and/or environmental stochasticity.

FOR RESUBMITTED PETITIONS:

a. Is listing still warranted? Yes

b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes

c. Is a proposal to list the species as threatened or endangered in preparation? No

d. If the answer to c. above is no, provide an explanation of why the action is still precluded: Since publication of the 2002 CNOR, the publication of a proposed rule to list this species has been precluded by other higher priority listing actions, and based on work scheduled we expect that will remain the case for the remainder of Fiscal Year 2004. Almost the entire national listing budget has been consumed by work on various listing actions taken to comply with court orders and court-approved settlement agreements, emergency listing, and essential litigation-related, administrative, and program management functions. We will continue to monitor the status of the Columbia spotted frog, Great Basin DPS, 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.

LAND OWNERSHIP: An estimated 90 percent of all known habitat for Columbia spotted frog occurs on lands managed by the Forest Service and the BLM. The remainder of known or suspected sites occurs on private, Tribal, or State lands.

PRELISTING: Efforts to create conservation agreements among Federal, State, and Tribal entities for the three Columbia spotted frog subpopulations in Nevada began in 1997. Though conservation agreements have been drafted for both the northeastern and central Nevada subpopulations of the Great Basin Columbia spotted frog, neither of these agreements has been signed. Recent setbacks in finalizing these agreements are a result of changes in team members responsible for creating the documents and reaching consensus. Despite the fact that neither of the documents have been signed, some of the parties have been fulfilling some of the commitments outlined in the agreements since 1998 and have plans to continue implementation regardless of signing.

The Snake River Basin Office in Boise, Idaho has been working with the BLM, Boise State University, the State of Idaho, and private landowners to complete surveys for Columbia spotted frogs. Extensive monitoring funded by the BLM, and completed by Boise State University has raised concern for populations of frogs in southwestern Idaho where frogs appear to be declining. Attempts to conserve isolated local populations on State of Idaho and BLM lands in Idaho have been unsuccessful to date. Efforts to protect Columbia spotted frog habitat on state lands in Idaho have been largely unsuccessful. However, the State has shown interest in writing a candidate conservation agreement with assurances for occupied habitat on State lands. Conservation efforts in eastern Oregon include continued inventory and monitoring programs and implementation of riparian protection measures at select pond sites in the Wallowa-Whitman National Forest. The Vale District BLM has implemented long-term monitoring at Dry Creek and Castro Springs.

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LISTING PRIORITY (* after number)

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3*
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: Threats to the species habitat occur rangewide, with populations that are isolated and fragmented. Disease has been found in some populations, and inadequate regulatory mechanisms are in place to protect this species throughout its range.

Imminence: Drought conditions for 4 consecutive years have further fragmented and isolated frog populations in the Great Basin, decreasing suitable habitat. To this date, numerous monitoring efforts are occurring. However, few conservation measures are being implemented to protect the species from threats.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Steve Thompson _____ March 6, 2003 ___
Acting Regional Director, Fish and Wildlife Service Date

Concur: Steve Williams _____ April 5, 2004 _____
Director, Fish and Wildlife Service Date

Do not concur:_____ _____
Director, Fish and Wildlife Service Date

Director's Remarks: _____

_____

_____

Date of annual review: February 2003__
Conducted by:_____

Comments: _____

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