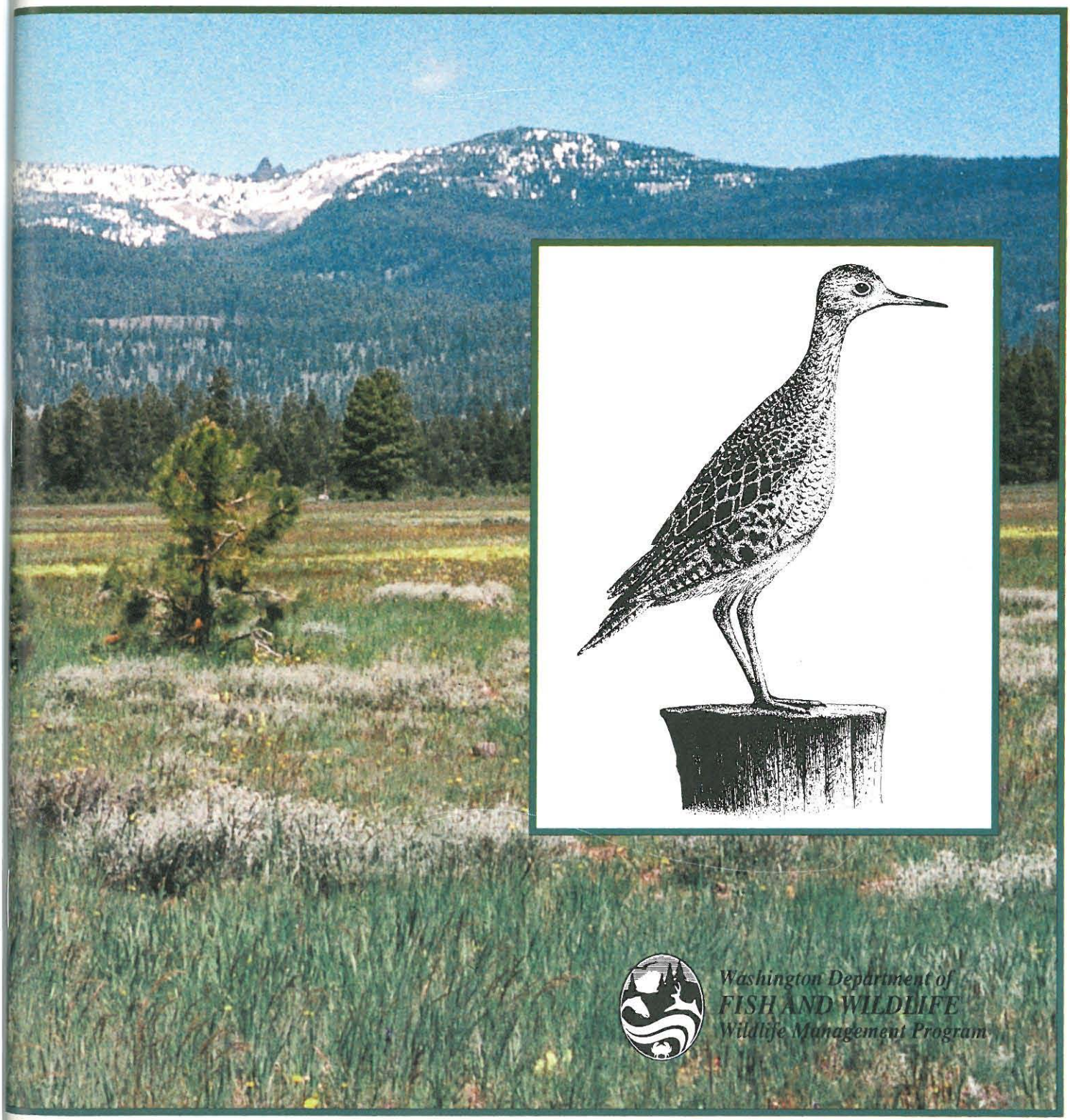
WASHINGTON STATE RECOVERY PLAN FOR THE

February 1995

# Upland Sandpiper



Washington Department of
FISH AND WILDLIFE
Wildlife Management Program

The upland sandpiper was classified by the Washington Wildlife Commission as an endangered species in 1981 (Washington Administrative Code 232-12-014). In 1990, the Commission adopted procedures for listing and delisting species as endangered, threatened, or sensitive and for writing recovery and management plans for listed species (WAC 232-12-297, Appendix A). The procedures, developed by a group of citizens, interest groups, and state and federal agencies, require preparation of recovery plans for species listed as threatened or endangered.

Recovery, as defined by the U.S. Fish and Wildlife Service, is "the process by which the decline of an endangered or threatened species is arrested or reversed, and threats to its survival are neutralized, so that its long-term survival in nature can be ensured."

This document summarizes the historic and current distribution and abundance of the upland sandpiper in Washington and describes factors affecting the population and its habitat. It prescribes strategies to recover the species, which include protecting the population, evaluating and managing habitat, and initiating research and education programs. Target population objectives and other criteria for reclassification are identified and an implementation schedule is presented.

The draft state recovery plan was reviewed by upland sandpiper researchers and State and Federal agencies prior to being made available for a 90-day public review. All comments received were considered in preparation of this final recovery plan. Additional information on the upland sandpiper is available from:

Manager, Endangered Species Section
Washington Department of Fish and Wildlife
600 Capitol Way N
Olympia WA 98501-1091

This report should be cited as:

Washington Department of Fish and Wildlife. 1995. Washington state recovery plan for the upland sandpiper. Wash. Dept. Fish and Wildl., Olympia. 50pp.

# Washington State Recovery Plan

# for the

# Upland Sandpiper

Washington Department of Fish and Wildlife
Wildlife Management Program
600 Capitol Way N
Olympia WA 98501-1091

Prepared by

Kelly R. McAllister

February 1995

Approved:

Robert Turner — 2/10/95

*Director, Washington Department of Fish and Wildlife* — *Date*

# TABLE OF CONTENTS

PART TWO: RECOVERY



PART THREE: IMPLEMENTATION



APPENDICES

# LIST OF TABLES AND FIGURES

# ACKNOWLEDGMENTS

Our understanding of upland sandpipers and upland sandpiper habitat was improved through discussions with Dr. Bonnie Bowen, Jerry Scoville, and Holly Akenson. Harriet Allen and Scott Richardson were active in developing many aspects of format and content for recovery plans and both have given their time to thoughtful reviews of this plan. Scott also helped obtain upland sandpiper information incidental to his searches for snowy plover information. Dr. Rex Crawford was an invaluable source of information on grassland conditions in Washington, past and present. Darrell Pruett drew the cover illustration and developed the cover design and regional distribution map. Holly Akenson provided the photo of upland sandpiper habitat in Oregon used on the cover.

# EXECUTIVE SUMMARY

The upland sandpiper breeds over a broad geographical range in North America, but is rare west of the Rocky Mountains. Nesting has been reported in scattered areas in western Montana, southern British Columbia, Washington, Idaho, and Oregon. Upland sandpipers winter in South America, primarily in Argentina. General abundance in North America has increased since market hunting was banned early in this century, though populations are still far from pre-market hunting levels.

Upland sandpipers are associated with grasslands. Though historically associated with prairies and meadows, they have become established in many agricultural areas where grain crops, alfalfa, and grazed pastures predominate. In the eastern United States, airports often provide suitable habitat. Nesting occurs in areas where grasses or grasses and forbs provide cover averaging between 10 and 40 cm (4-16 in) in height. Foraging, brood rearing and loafing areas are usually more sparsely vegetated, including heavily grazed pastures, recently cut alfalfa or corn fields and open prairie.

In Washington, upland sandpipers have been rare throughout this century. From the late 1950's to present, the east Spokane Valley has received the most attention because birds were found to be present during most years. Small numbers have been observed there each year and sandpipers have nested there at least twice. Numbers, however, have dwindled. During 1989, only three individuals were seen. Two sandpipers were present during the 1993 September migration. Surveys conducted during 1994 failed to detect any sandpipers. The areas in the east Spokane Valley once frequented by sandpipers have been steadily altered by housing developments, gravel pits, and changes in vegetative cover. This degradation of the habitat may be responsible for the loss of nesting birds. However, declining numbers are also apparent in Oregon where habitat change is less severe. This suggests that external factors may be contributing to a region-wide decline.

Recovery of upland sandpiper numbers to a level at which the species can be considered secure will require management of habitat on a broad landscape level and establishment of nesting birds in landscapes where they are not currently present. Suitable areas to manage for upland sandpipers need to be identified. In the near term, habitat enhancement and surveys are suggested as a means to test the effectiveness of habitat improvement techniques for attracting colonizers to Washington State. As long as upland sandpipers continue to be seen in eastern Washington, including migrant visitors, the attraction of colonizing nesters will be considered a viable option. Captive-rearing and translocation of birds will also be considered to help achieve recovery objectives.

Recovery objectives for downlisting to threatened status are a five-year average of at least 20 May-census adults and secure nesting and foraging habitat comprised of at least 10 sites at least 100 ha (247 ac) in size. The objectives for delisting are a five-year average of 50 May-census adults and secure habitat comprised of at least 25 sites at least 100 ha in size.

# PART ONE

# BACKGROUND

## TAXONOMY

The upland sandpiper (*Bartramia longicauda*) is a member the Family Scolopacidae. It is most similar to the curlews and is included in the curlew Tribe Numeniini. However, it is the only member of its genus (American Ornithologists' Union 1983).

## DESCRIPTION

The upland sandpiper is a medium-sized sandpiper with a small head; large, dark eyes; long, thin wings and a long tail. Its legs and feet are yellowish. In flight, its blackish primary wing feathers contrast markedly with the brown upperparts. The long, pointed wings, dark rump, and barred, whitish, outer tail feathers are also good fields marks when viewing a bird in flight (National Geographic Society 1987, Bent 1929). Upland sandpipers are 28 to 33 cm (11 to 13 in) from tip of tail to bill tip. Wing length ranges from 15 to 18 cm (6 to 7 in) and bill length ranges from 2.8 to 2.9 cm (1.1 to 1.2 in). Tail length is 8.7 to 9.0 cm (3.4 to 3.5 in) (Gabrielson and Jewett 1970).

At close range, juveniles can be distinguished from adults by the scaly appearance of juvenile upperparts. Juvenile wing-coverts have clear buff fringes and dark submarginal lines; the scapulars are very dark and uniform, with narrow, neat buffish-white fringes; tertials are notched pale buff (Hayman et al. 1986).

Upland sandpipers have distinctive calls that allow for identification of birds that are never seen. Calls include a rolling trill, an alarm note, a rich musical note which sounds like *qua-a-ily*, and a prolonged, mournful, mellow whistle (Bent 1929).

Upland sandpipers are usually seen in small numbers, often groups of three. They have a habit of holding their wings upward briefly when they alight. They often perch on fence posts, trees, poles and rocks (Stout et al. 1967).

Nests are usually slight depressions in tall grass, the nest cup roughly 7 to 12 cm (4-5 in) in diameter and lined with grass. Nests usually contain a complete clutch of four, sometimes five eggs. The eggs are buff colored with more or less evenly spaced spots of brown or reddish brown. Eggs average 45 by 32 mm (1.8 by 1.3 in) (Bent 1929).

## GEOGRAPHICAL DISTRIBUTION

### North America

The upland sandpiper's breeding distribution includes a substantial portion of the temperate and subarctic regions of North America (Fig. 1). Within this extensive area, upland sandpipers are often restricted to scattered local areas of suitable habitat.

Figure 1. Breeding range of the upland sandpiper (adapted from National Geographic Society 1987).

Upland sandpipers winter in the southern pampas region of South America from Surinam and northern Brazil south to central Argentina and Uruguay (American Ornithologists' Union 1983, White 1988).

In the Pacific Northwest, upland sandpipers have nested in local areas of eastern Washington, eastern Oregon, Idaho, western Montana, and, possibly, southern British Columbia (Table 1, Fig. 2). Migrants occur in widely scattered areas throughout the region, including coastal areas (Paulson 1993).

### Washington

As migrants, upland sandpipers have been seen in both coastal and interior areas of Washington (Lloyd 1979, Paulson 1993). Nesting has only been confirmed at Stubblefield Lake on the Turnbull National Wildlife Refuge and in the east Spokane Valley (Jewett et al. 1953, Lloyd 1979). Upland sandpipers have been reported from eleven counties: Spokane, Walla Walla, Benton, Whitman, Grant, Okanogan, Yakima, Kittitas, Adams, Asotin, and Grays Harbor (Lloyd 1979, Paulson 1993).

The potential breeding range of the upland sandpiper in Washington likely includes much of the eastern half of the state. Sightings in this portion of the state are widely scattered (Fig. 2) and generally thought to represent migrants. However, in eastern Oregon a substantial number of areas where sightings had occurred turned out to be nesting areas. Intensive surveys by experienced observers were required to determine that upland sandpipers were present and nesting at the Oregon localities (Scoville pers. comm, Akenson pers. comm.).

Table 1. Pacific Northwest sites of known or possible upland sandpiper breeding and sites with migrant sandpipers (excluding coastal areas). Possible breeding was indicated by sightings in May, June, or July. Sites are mapped in Figure 2. Appendix 2 provides detail of Washington sightings.

| Location | County | Sighting Type | Source |
|---|---|---|---|
| WASHINGTON | | | |
| East Spokane Valley | Spokane | Breeding confirmed | Lloyd (1979), Thieman (1987) |
| Near Lacrosse | Whitman | Probable migrants | Aud. Newsletter, L. & F. Jones |
| West end Sprague Lk | Adams | Probable migrants | G. & W. Hoge |
| Western Walla Walla Co. | Walla Walla | Possible breeding | Lloyd (1979) |
| Stubblefield Lk. | Spokane | Breeding confirmed | Jewett et al. (1953) |
| Wenas Lake | Yakima | Probable migrants | Lloyd (1979) |
| Cascade Valley, Moses Lk. | Grant | Possible breeding | Lloyd (1979) |
| N of Umatilla | Benton | Possible breeding | Lloyd (1979) |
| Osoyoos Lk. | Okanogan | Possible breeding | Lloyd (1979) |
| Chief Joseph Wildl. Area | Asotin | Probable migrants | M. Beckstead |
| Ellensburg | Kittitas | Possible breeding | Paulson (1993) |
| OREGON | | | |
| Sycan | Lake | Breeding confirmed | Stern and Rosenberg (1985) |
| Harney Valley | Harney | Possible breeding | Marshall (1988) |
| Big Summit Butte | Crook | Possible breeding | Marshall (1988) |
| Bear Valley | Grant | Breeding confirmed | Marshall (1988) |
| Logan Valley | Grant | Breeding confirmed | Marshall (1988) |
| Albee-Ukiah | Umatilla | Breeding confirmed | Marshall (1988) |
| Bridge Creek | Umatilla | Possible breeding | Marshall (1988) |
| Starkey | Union | Possible breeding | Marshall (1988) |
| Fort Klamath | Klamath | Breeding confirmed | Marshall (1988) |
| Dead Horse Ridge | Wallowa | Possible breeding | Paulson (1993) W. Van Dyke |
| IDAHO | | | |
| Rathdrum | Kootenai | Breeding confirmed | W. Hall |
| Round Valley | Valley | Breeding confirmed | J. Marks & V. Saab |
| High Valley | Valley | Possible breeding | L. Powers |
| WESTERN MONTANA | | | |
| Ovando | Powell | Possible breeding | Paulson (1993) |
| SOUTHERN BRITISH COLUMBIA | | | |
| White Lake & Oliver | - | Possible breeding | Cannings et al. (1987) |
| Anarchist Mtn & Sidley | - | Possible breeding | Cannings et al. (1987) |
| Manning Park | - | Possible breeding | Paulson (1993) |

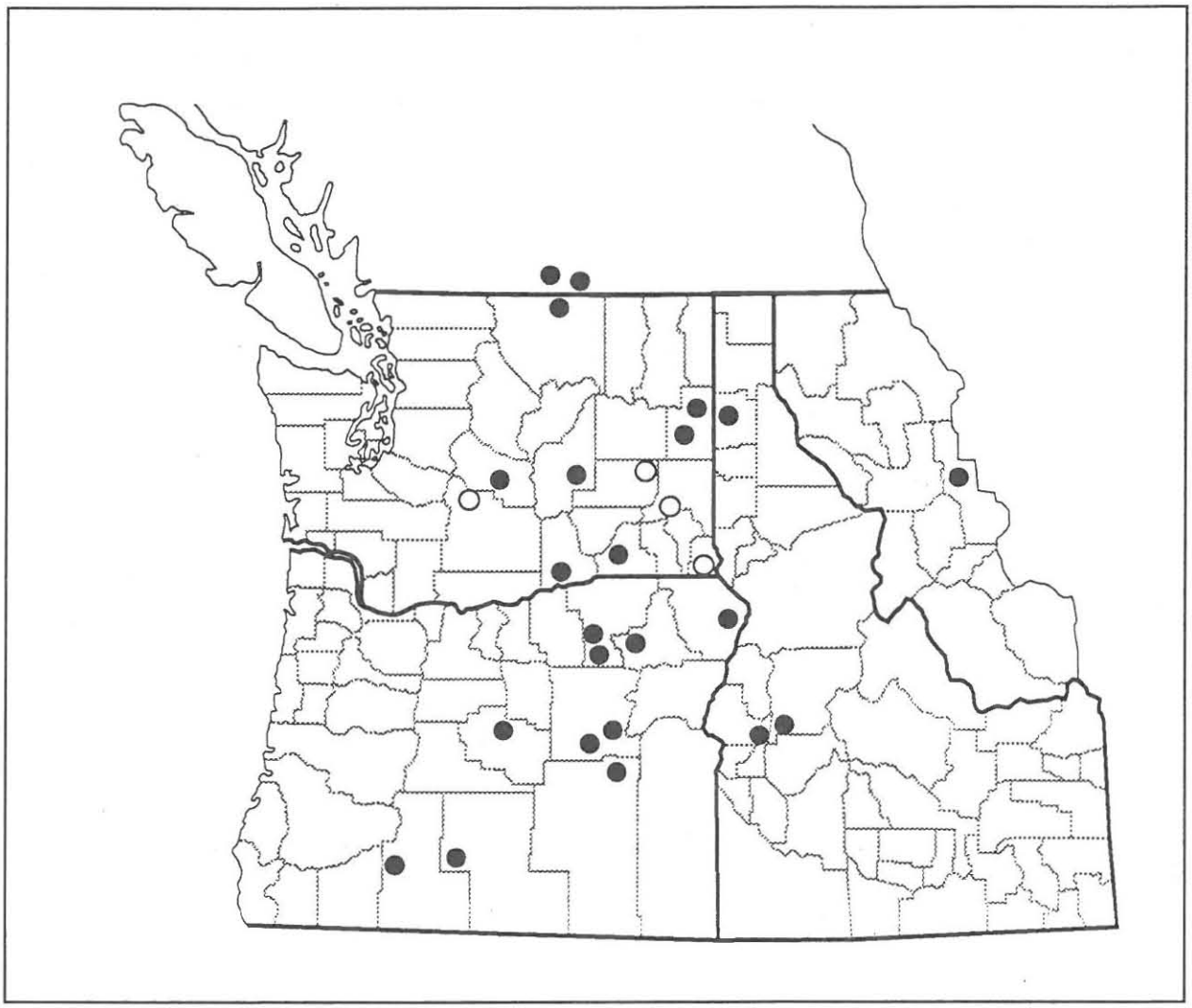


Figure 2. Locations of upland sandpiper occurrences within the species' Pacific Northwest breeding range (see Table 1 for references). Closed circles represent sites with confirmed or possible breeding (based on May-July sightings). Open circles represent probable migrants (April, August, or September sightings).

# NATURAL HISTORY

## Reproduction

Upland sandpipers maintain a monogamous pair bond. Birds are already paired and exhibit courtship behavior upon arrival on the breeding ground. Initiation of nesting activity is apparently synchronous within members of a sandpiper population, occurring approximately 2 weeks after arrival on the breeding grounds (Buss and Hawkins 1939, Higgins and Kirsch 1975, Ailes 1976).

The limited available data on philopatry suggest that breeding upland sandpipers are philopatric. Bowen (1976) documented 3 of 20 (15%) banded adults returned to previous nesting sites. Ailes (1976) found that 5 of 15 (33%) banded adults returned to the same area the following year. One returning pair monitored by Ailes nested within 20 m (65 ft) of their previous year's nest.

The typical clutch contains four eggs. Incubation lasts 21-28 days, with a mean of 24 days. Both adults incubate the eggs with the male doing the larger share as hatching approaches. Occasionally, pairs that experience loss of a first clutch will renest, resulting in a second peak of observed hatching (Buss and Hawkins 1939, Higgins and Kirsch 1975, Ailes 1976). Therefore, two months is the maximum period between earliest initiated and latest hatched nest.

Nest densities show considerable variation both geographically and over time. During their seven-year study in North Dakota, Bowen and Kruse (1993) reported nest densities which ranged from 8 to 22 per 100 ha (247 ac) with a mean of 12.4 per 100 ha. In South Dakota, nest densities of 5 nests per 100 ha were reported (Lokemoen and Duebbert 1974) and, in Wisconsin, densities ranged from 25 to 75 nests per 100 ha (Buss and Hawkins 1939).

Upland sandpiper hatching success is high compared to other ground nesting species. Kirsch and Higgins (1976), summarizing data from other studies, report a range of hatching rates from 63 to 100 percent. Ailes (1976) found 83 and 86 percent success in a two-year study. Kantrud and Higgins (1992) reported 67% apparent hatching success, which corresponded to a 48% discrete Green estimator of hatching success (Johnson 1991) for a sample of 617 nests in the north central United States and south central Canada. High nesting success may be due to the upland sandpiper's behavior, which includes mobbing of potential predators, vocalizations, and coloniality (Kaiser 1979b).

Nest failures during Ailes' study (Ailes 1976) were attributed to livestock trampling. However, Bowen and Kruse (1993), studying different grazing prescriptions, found that predation rather than livestock trampling was the predominant cause of nest failures.

Sandpipers are extremely mobile after hatching and leave the nest almost immediately to begin foraging. Only one adult cares for the young and available evidence suggests that it is always the male. The other adult apparently leaves the breeding grounds (Buss and Hawkins 1939, Higgins and Kirsch 1975, Buss pers. comm., Ailes 1976). Sandpiper chicks achieve independence in approximately 30 days (Ailes 1976).

## Mortality

Mammalian predators have the potential to significantly reduce production of upland sandpiper chicks (Bowen and Kruse 1993, Bolster 1990). Increasing numbers of raccoons (*Procyon lotor*) in northeastern Colorado may be a problem for sandpipers. In North Dakota, Kirsch and Higgins (1976) suspected that red fox (*Vulpes vulpes*) were responsible for most nest failures.

Bolster (1990) emphasized the need to prevent chick mortality associated with mowing. Mortalities would likely be avoided by mowing later in the summer or cutting the grass off higher from the ground.

## Movements

In some areas of North America, upland sandpipers are present on their breeding grounds as early as March each year (Stout et al. 1967). In the Pacific Northwest, arrival on the breeding grounds is usually from late April to early May (Paulson 1993). Migration from most breeding areas peaks in August and by early September all have left their breeding ranges for South America (Stout et al. 1967). Upland sandpipers believed to be in migration are sometimes seen in Washington during August and September, with a rare sighting in October (Lloyd 1979, Paulson 1993). The fall migration takes birds south through North America and on to South America via both Central America and the West Indies. On the northward migration, records indicate that birds pass through Central America almost exclusively, largely abandoning the West Indies route across the Caribbean (White 1988).

## Foraging and Food

Upland sandpipers forage by walking through grass or over open ground while jerkily moving their heads about in a visual search for insects or other food items. Insects which occur in a relatively narrow stratum between ground surface and 10 cm above comprise up to 97% of the diet of upland sandpipers of all ages, while vegetable matter consisting of various seeds comprises the remaining 3%. Grasshoppers, crickets, and weevils comprise nearly half of the diet. Many other insects and invertebrates such as centipedes, millipedes, spiders, snails and earthworms have also been reported in the sandpiper's diet (Bent 1929, Buss and Hawkins 1939, Buss pers. comm., Paulson 1993).

# HABITAT REQUIREMENTS

## General

While specific habitats used by upland sandpipers change during the nesting season, preferred habitats include a wide variety of croplands, pastures, wet meadows, and native prairie types. Selected habitats generally provide vertical vegetation structure made up of plants that allow easy passage of birds moving about on the ground. In general, nests are found in areas where grasses or grasses and forbs provide cover averaging between 10 and 40 cm (4-16 in) in height. Foraging and loafing areas, where the birds are more likely to congregate, generally have lower, often sparse vegetation, and include heavily grazed pastures, recently cut alfalfa or corn fields, and relatively open prairie areas. In Manitoba, Canada, upland sandpipers were found to prefer native grasslands over grasslands containing Eurasian exotics (Wilson and Belcher 1989).

Both Bolster (1990) and Akenson (1991) discussed the importance of providing a diversity of habitats. Short vegetation is needed for feeding and taller, more dense vegetation is needed for nesting. For this reason, grazing, prescribed burning, plowing, and mowing may all be beneficial practices to provide the short vegetation foraging component of the sandpiper's habitat.

Information on the vegetation and land use of a particular piece of ground used by upland sandpipers is important. However, these features alone are probably not the only indicators of an area's suitability for attracting and maintaining upland sandpipers. Landscape features comprised of topography, human development, vegetation, and land uses over an area much broader than the home range of an individual upland sandpiper, are potentially important to upland sandpiper colonization and continued use of an area. These landscape features may be important in attracting migrating upland sandpipers to alight and forage or rest in an area. They may also be important to attracting colonizing nesters.

On the Kulm wetland management district in south-central North Dakota, upland sandpipers use a landscape dominated by native mixed-grass prairie and seasonal and semi-permanent wetland basins (Bowen and Kruse 1993). In northeastern Colorado, Bolster (1990) studied upland sandpipers in an area dominated by rangeland and croplands. Approximately 58% of the study area was grazed. The rest was primarily cultivated grasses, alfalfa, old fields, grain crops, and bare ground.

Airports, in some states, provide suitable habitat for upland sandpipers. In Ohio, 74.4% of breeding area sightings were recorded at airports where non-tilled grasslands are extensive (Osborne and Peterson 1984). Of five known upland sandpiper breeding areas in Indiana, the largest and best documented is associated with the Michiana Regional Airport and an adjacent industrial park. The frequently cut grass of the airport provides good foraging habitat while an adjacent field that is not cut during summer provides tall grass nesting

habitat (Snyder et al. 1987). During 1956, the Lancaster Municipal Airport in Pennsylvania supported 140 of 156 upland sandpipers known for the county (Beck 1956). At Westover Air Reserve Base in Massachusetts, management for grassland birds has produced increases in upland sandpiper and grasshopper sparrow numbers by more than 80% over a six-year period (Vickery et al. 1994).

In Oregon, upland sandpipers are found in high elevation meadows [1,000-1,600 m (3,400-5,200 ft)] within forest-dominated landscapes. These meadows often have one or more creeks flowing through them and extensive wet areas maintained by flooding or sub-surface irrigation (Akenson 1992, Herman et al. 1985, Marshall 1988, Stern and Rosenberg 1985).

In the High Valley of Idaho, Powers (pers. comm.) found adults during the breeding seasons of 1983 through 1985 utilizing a lightly grazed meadow with a creek flowing through it. Sagebrush (*Artemisia* spp.), ponderosa pine (*Pinus ponderosa*), and Douglas fir (*Pseudotsuga menziesii*) dominated the surrounding uplands.

Ailes (1976) described his Wisconsin upland sandpiper study area as 8,300 ha (20,509 ac) of primarily agricultural land. Eighty-five percent of the area was grassland, including tame hay and pasture. The remaining area was cropland (5%) and forest and lowland shrubs (10%).

In New York, upland sandpipers preferred old fields where hay had been grown for many consecutive years. The preferred fields had low, sparse vegetation that, in addition to the dominant grasses, had a diverse array of forbs (Bollinger 1991).

In Maine, a study of the area requirements of grassland nesting birds found upland sandpipers on many of the larger grassland-barrens. These sites were almost all managed for commercial blueberry production. Biennial mowing and burning is practiced on most of them and herbicide applications to reduce grass and forb cover occurs on many sites (Vickery et al. 1994).

White (1983) examined upland sandpiper habitat selection in Wisconsin. He selected townships with the highest reported upland sandpiper populations and found that these had more than half of their assessed land in hay, 29% in oats, and only 18% in corn. He concluded that the sandpipers were selecting for areas with high acreages in hay and oats and low acreages in corn. However, the author went on to discuss how oats are planted along with alfalfa. The oats are harvested in May, releasing the alfalfa which then grows quite rapidly and resembles, in its first year, the shortgrass prairie vegetation native to this region.

White reported that gentle topography was an important factor in habitat selection. He found that areas with apparently suitable vegetation but very rugged topography were little used by upland sandpipers. White also found that the presence of wooden fence posts resulted in greater numbers of upland sandpipers than would be expected based on other landscape features.

The Spokane Valley habitat in Washington is a combination of irrigated alfalfa and grass hay fields, irrigated commercial bluegrass fields, dryland range, and irrigated pastures. An abandoned home site with associated fences and tall grass is present and has received some use by upland sandpipers.

Estimates of the area requirements of a single nesting pair or a colony of upland sandpipers on their breeding grounds varies considerably between studies. After monitoring the activities of 7 adult sandpipers in the east Spokane Valley during 1986, Williams (1986) concluded that the sandpipers ranged over an area 101 ha (250 ac) in size. A female's home range in Wisconsin was 85.6 ha (211.5 ac), while that of a male was 8.5 ha (21.0 ac) (Ailes and Toepfer 1977). Also in Wisconsin, a male attending one young sandpiper stayed in an unusually small field 1 ha (2.5 ac) in size (Ailes 1980). Indiana's best documented upland sandpiper nesting area at Michiana Regional Airport is comprised of 271 ha (670 ac) of frequently mowed foraging habitat and 48 ha (106 ac) of tall grass nesting habitat. There were 15 nests in this area during 1986 and an estimated 52 individual sandpipers, including young (Snyder et al. 1987).

Groups of sandpipers (4-12 birds) at six breeding sites in New Jersey used areas that averaged 85.7 ha (211.5 ac) and ranged from 44 to 203 ha (108.7 to 501.6 ac) (Plage n. d.). One group of seven sandpipers in Oregon used a 500 ha (1,235 ac) area (Akenson and Bottum 1992). Buss (1951) reported that upland sandpipers in the Yukon territory had large home ranges of up to 805 ha (1,989 ac) in size. In New York, upland sandpiper occurrence was more frequent in hayfields larger than 10 ha (25 ac), with eight of 37 fields having occurrences. Only one of 73 fields smaller than this had upland sandpiper occurrences (Bollinger 1991). In Maine, upland sandpipers were infrequent at sites less than 50 ha (124 ac) and reached 50% incidence at those of about 200 ha (494 ac). The 50% incidence level provides a conservative but reasonable estimate of a species' minimum area requirements (Vickery et al. 1994).

## Nesting

Upland sandpiper nests are typically well-concealed within a clump of vegetation which consists primarily of grasses and, to a lesser extent, forbs. Vegetation height is an important factor in nest site selection (Kirsch and Higgins 1976, Kaiser 1979a,b). Most nests have been found in vegetation 10 to 40 cm (4 to 16 in) tall (Kirsch and Higgins 1976, Dorio and Grewe 1979, Buhnerkempe and Westemeier 1988, Bolster 1990, Ailes 1976). Vegetation height exceeding 55 to 60 cm (22 to 24 in) is generally considered unsuitable for nesting (Kirsch and Higgins 1976, Dorio and Grewe 1979, Kaiser 1979a,b, Buhnerkempe and Westemeier 1988). Ailes (1976) did not find any sandpipers initiating nesting in cover over 40 cm (16 in) tall. However, by the time hatching occurred, vegetation could be as high as 70 cm (28 in).

White (1983) summarized data from 553 nest records deposited at the Cornell Laboratory.

The proportion of nests in different land use categories was as follows: 28% in prairie-grassland; 21% in burned pasture; 16% in various idle land; 12% in grazed pasture; and 7% in hayfields. He emphasized that land use alone does not determine suitability for upland sandpiper nesting. Other important factors are: lack of rugged topography, presence of fence posts, low vegetative "edge" rating (large, unbroken fields) and very little forested area.

In Oregon, nests have been found on the borders of seasonally wet mountain meadows, usually on a small mound elevated slightly above the surrounding terrain (Herman et al. 1985). Nests are most frequently located near the forest-grassland or sagebrush-grassland edge (Akenson 1992, Herman et al. 1985). At Sycan Marsh, a two to three week old juvenile and single adult were found in a dry bluegrass meadow about 70 m (230 ft) from the forest edge and over 200 m (656 ft) from standing water (Stern and Rosenberg 1985). Scoville (1991) and Akenson (1991) emphasize the importance of forbs in areas upland sandpipers select for nesting in northeastern Oregon. Plant species consistently found at upland sandpiper sites include: rushes (*Juncus* spp.), blue camas (*Camassia quamash*), biscuitroot (*Lomatium leptocarpum*), Mule's ear (*Wyethia amplexicaulis*), cinquefoil (*Potentilla fruticosa*), senecio (*Senecio integerrimus*), American bistort (*Polygonum bistortoides*), and Idaho fescue (*Festuca idahoensis*) (Akenson 1992).

Two nests have been found in Washington's Spokane Valley but descriptions of the habitat where the nests were found is lacking. Sightings frequently take place in natural wetlands or irrigated lands. Larrison reported studying Spokane Valley upland sandpipers in wet meadow areas (Larrison and Sonnenburg 1968).

## Foraging, Brood Rearing, and Loafing Habitat

In Wisconsin, Ailes (1976) found that upland sandpipers favored grazed pastures for foraging. Heavily grazed fields with vegetation heights between 0 and 10 cm (0 - 4 in), accounted for 68% of the observations in grazed areas. In Oregon, Scoville (n.d.) believes that light grazing can provide areas of high visibility and easy mobility that sandpipers prefer for foraging and loafing. Heavy livestock grazing, however, removes too much grass cover and, as a result, heavily grazed areas are little used by upland sandpipers.

Bolster (1990) found that heavily grazed areas were favored during the early nest initiation phase. During the chick rearing phase preferred habitats were: alfalfa-short [27 cm (11 in) or less in height]; alfalfa-cut [5 cm (2 in) or less in height with heaps of cut material]; and corn-short [27 cm (11 in) or less in height]. He also found that the sandpipers favored sparse cover during the pre-migration phase. Heavily grazed, alfalfa-cut, alfalfa-baled, and bare ground were used in greater proportion than their availability.

Ailes and Toepfer (1977) reported as many as 12 upland sandpipers frequenting a heavily grazed pasture [less than 10 cm (4 in) vegetation height]. They monitored one pair of sandpipers closely and found that the birds were often found in plowed fields or a newly

planted corn field prior to nesting. After the pair had hatched a single young, the male and the chick spent most of their time in a grazed field. The adult and chick moved into the field when the vegetation was 30 to 40 cm (12 to 16 in) in height. By the time observations of the birds concluded (when the chick was apparently killed), grazing had reduced the average height to 10 cm (4 in).

## POPULATION STATUS

### Present

Recent Breeding Bird Survey data indicate an upward trend in upland sandpipers in North America (Robbins et al. 1986, Bowen pers. comm.). A considerable expansion of the upland sandpiper's range in Quebec has been noted (Falardeau and DesGranges 1991) and upland sandpiper numbers in east-central Alaska are believed to be larger than previously thought (Ritchie and Ambrose 1992). However, in view of the great abundance of upland sandpipers prior to the turn of the century (Bolster 1990), the current increasing trend is relatively insignificant (Bowen pers. comm.).

Current breeding populations of the upland sandpiper in the U.S. are very localized. The overall breeding range of the species is less extensive than it was two centuries ago (Johnsgard 1981). In the northeastern United States, recent declines are associated with modern farming methods and conversion of huge tracts of prairie to croplands. Modern farming practices are typified by a shift from pasture land and hay to row crops, a more intensive harvest schedule for hay, and the tendency to graze remaining pasture lands more heavily (Bolster 1990, Bollinger 1991).

For the 32 states within the range of the upland sandpiper, the species is considered threatened or endangered in 10 and is in a category indicating the need for special attention in an additional 8. In 14 states, the species has no special status or is of undetermined status (Table 2).

Few upland sandpiper nesting areas exist west of the Rockies. Oregon has the largest known nesting population west of the Rockies. A high count of 71 sandpipers was reported for 1987 (Scoville 1991, Akenson 1992). Subsequent surveys in Oregon suggest a progressive decline and 1993 surveys found significantly fewer birds (Akenson 1993). Idaho has breeding birds in two areas, but numbers are estimated at less than 10 pairs (Marshall 1988). British Columbia's first confirmed nest was found near Riske Creek during June 1992 (van den Driessche et al. 1994). In Washington, upland sandpipers have, until recently, been regularly seen during the breeding season at one location, the east Spokane Valley, where there were one to several pairs. Nesting was rarely confirmed here. Intensive surveys of the east Spokane Valley during 1993 failed to detect the presence of upland sandpipers until September when two were seen. During 1994, surveys failed to detect the presence of any upland sandpipers.

Table 2. Upland sandpiper status by state.

| State | Status[a] | State | Status | State | Status |
|---|---|---|---|---|---|
| Alaska | N | Maine | N | New Hampshire | E |
| Arkansas | N | Maryland | E | Oklahoma | N |
| Colorado | N | Massachusetts | E | Oregon | S |
| Connecticut | E | Michigan | N | Pennsylvania | T |
| Delaware | CC | Minnesota | SC | South Dakota | N |
| Idaho | SC | Missouri | WL | Vermont | T |
| Illinois | E | Montana | N | Virginia | T |
| Indiana | E | Nebraska | N | West Virginia | N |
| Iowa | N | New Jersey | E | Wisconsin | SC |
| Kansas | N | New York | SC | Wyoming | SC |
| Kentucky | N | North Dakota | N | | |

[a] Status abbreviations as follows: Endangered (E); Threatened (T); Special Concern (SC); Conservation Concern (CC); Watch List (WL); Sensitive (S); Status undetermined or None (N).

## Past

East of the Mississippi River, conversion of forested areas to pastures and hayfields resulted in range expansions for many grassland species prior to the turn of the century. The upland sandpiper is one of the species that benefitted from these changes (Bollinger 1991). However, upland sandpipers declined dramatically at the turn of the century as a result of intensive market hunting. Populations rebounded when market hunting was prohibited under the Migratory Bird Treaty Act of 1916 (Bolster 1990). Changes in agricultural practices in the northeastern United States over the past several decades have resulted in local declines of upland sandpipers and other grassland nesting birds (Bollinger 1991).

In the Pacific Northwest, upland sandpipers are rarely seen and sightings are sufficiently significant that they are often published. Published accounts indicate that decades have sometimes passed between sightings. In Oregon, nesting was first noted in 1887. By 1929, there had been insufficient evidence of continued presence in the state and S. Jewett recommended that the species be placed on a "hypothetical" list. However, discovery of a specimen collected in 1919 and S. Jewett's own collection of specimens in 1931 led to the conclusion that upland sandpipers were still present in Oregon (Gabrielson and Jewett 1970). Subsequently, the sandpiper fell into obscurity for a prolonged period. Then, during 1977, the intensive searches of H. Nehls and M. Koninendyke resulted in confirmation of a small group of nesting sandpipers at Bear Valley, Oregon. Knowledge of numbers and distribution in Bear Valley and surrounding areas improved markedly after intensive surveys conducted in 1980 and 1984 (Herman et al. 1985).

Many hours of observation by experienced observers proved to be necessary to locate areas important to upland sandpipers in Oregon. The initial searches have provided information that allows for more efficient and systematic surveys to determine population trend. Many of the Oregon areas now known to be important and traditionally occupied sandpiper habitats were, ten years ago, known only to have had one to a few sightings that were often decades old.

The situation in Washington appears to be similar (Appendix B). During April 1905, an upland sandpiper's distinctive call was heard in Walla Walla County (Dawson and Bowles 1909). The next documention of the species in Washington was of birds in the vicinity of Opportunity and Stubblefield Lakes during the late 1920s (Jewett et al. 1953). A few additional sightings were recorded for Spokane County during the 1940s and by the late 1950s enthusiastic birders were aware of the presence of the birds in the east Spokane Valley. Small numbers of birds have been reported here each year until very recently (Lloyd 1979). This anecdotal record for the two states suggests that upland sandpipers have always been few in number and that focused effort is required to detect their presence.

The earliest record of upland sandpipers in Washington is W. L. Dawson's Walla Walla County record (Dawson and Bowles 1909). None have been reported from this county since 1948 (Weber and Larrison 1977). In the past three decades, upland sandpipers have been reported from 10 other Washington counties (Lloyd 1979, Paulson 1993). Nesting has only been confirmed in Spokane County. Confirmation of nesting exists for the Turnbull National Wildlife Refuge in 1928 and the east Spokane Valley in 1965, 1976, and 1987 (Jewett et al. 1953, Lloyd 1979, Thieman 1987). Other breeding season observations suggest past nesting at Indian Prairie in Spokane County during 1929 (Jewett et al. 1953). These areas of Spokane County have apparently always hosted just a few individuals. From 1941 through 1993, more than 4 separate adults were observed during only 13 of 41 years for which observations were available (Appendix B). Additionally, these estimates may be high since birds were considered to be separate if viewed several miles apart, despite different dates and the possiblity of their being the same individuals. Sightings in other areas suggest the possibility of past nesting in other counties. Nesting may have occurred in western Walla Walla County at locations described as "Touchet Creek," "near Touchet," and at "Two Rivers." These sightings are from 1905 and 1948 (Buss pers. comm., Dawson and Bowles 1909, Weber and Larrison 1977, Jewett et al. 1953). A sighting in Benton County (North of Umatilla) in June 1978 may indicate past nesting in this area (Lloyd 1979). Sightings and reports of past nesting also exist for areas near Lake Osoyoos in British Columbia (Cannings et al. 1987).

Historic records of upland sandpiper occurrence suggest that Washington's sandpipers have always been few in number and are likely a small subset of some broader population. Given the extensive nesting range in northern Canada and Alaska, at longitudes equal to or west of the Spokane Valley, it is likely that some upland sandpipers follow a northward migration that passes through eastern Washington. Migration period sighting records in a variety of locations not known to support nesting provide evidence of such a migratory route (Lloyd

1979, Cannings et al. 1987, Appendix B). In the past, small numbers of birds may have been attracted to suitable habitat here. Declining attractiveness of habitat in this area is probably at least partially responsible for recent declines in upland sandpiper range in Washington.

## HABITAT STATUS

Washington's single remaining upland sandpiper nesting area in the east Spokane Valley is currently estimated to contain less than 125 ha (300 ac) of marginally suitable habitat. Adjacent habitat in Idaho has not been studied to assess its quality or extent. Other suitable habitat in this vicinity, or elsewhere within Washington, may exist. However, upland sandpipers are not known to regularly occupy any other area.

Some of the Spokane Valley habitat has already been replaced by residential housing, developed at both urban and suburban densities. Powerline corridors transect the area, and it is surrounded by residential, gravel mining, and forested areas. A gravel mining operation has been approved for an area known to have been used by sandpipers in the past (King et al. 1991). Future development proposals will not be influenced by consideration of sandpiper habitat if use by birds on the site cannot be documented within the three-year period prior to the proposal.

Recently, spotted knapweed (*Centaurea maculosa*) has spread over much of the east Spokane Valley range land. The increase of spotted knapweed probably reduces the potential acreage available for nesting and foraging because it is typically taller than the maximum height of vegetation considered suitable for nesting and too dense for sandpiper foraging.

## CONSERVATION STATUS

### Legal Status

In 1981, the upland sandpiper was listed by the Washington Wildlife Commission as endangered under Washington Administrative Code 232-12-014. Upland sandpipers are listed as threatened or endangered in 10 other states as well (Table 2). However, in the northern Great Plains, numbers of upland sandpipers are large and increasing and the species has no special status under the federal Endangered Species Act.

### Management Activities

The significance of the upland sandpipers that return to Spokane County each year was recognized by their 1978 inclusion in the county's Unique Environmental Features Inventory. Washington's Wildlife Commission (then known as the Game Commission) designated the upland sandpiper a State Endangered species in 1981. Recognition of the upland sandpiper's

precarious situation in Washington has influenced regulatory activities in Spokane County. The east Spokane Valley upland sandpiper range has been subject to requests for county permits to allow for subdivisions and gravel pits. The county, in consultation with the Washington Department of Fish and Wildlife, has attempted to mitigate the planned developments on private land. Mitigation has included set-asides or buffers and agreements to manage weeds and promote grassland vegetation. In response to concerns for upland sandpipers and other concerns of the local community, Spokane County has denied a rezone request necessary for an additional gravel pit within the upland sandpiper range.

Between 1986 and 1989, the Bonneville Power Administration funded upland sandpiper surveys in conjunction with the upgrade of a powerline that traverses the sandpiper habitat area. Although nests were not found, these surveys provided information on sandpiper numbers and habitat use. Washington Department of Fish and Wildlife biologists have also conducted annual surveys since at least 1981.

Despite these efforts, upland sandpiper habitat in the east Spokane Valley has declined in both quantity and quality. That habitat which remains is so restricted that the measures taken to mitigate the impacts of increasing human activities will probably not prevent loss of upland sandpipers from the area in the long-term. However, in the short-term, maintaining habitat conditions that provide for nesting by the few remaining sandpipers could be very important. These few birds may still be a key to long-term recovery.

## FACTORS AFFECTING CONTINUED EXISTENCE

Many factors could contribute to extirpation of the few upland sandpipers which have traditionally returned to the east Spokane Valley during the breeding season. Mortalities, whether on the breeding grounds, wintering grounds, or in migration could eliminate birds which breed in Washington. Alternatively, the changes in habitat conditions in the east Spokane Valley could be sufficient to deter sandpipers from staying or returning. The loss of upland sandpipers as a breeding bird may have already occurred. The only birds seen in 1993 were probable migrants seen in September and none were seen in 1994.

Migrant upland sandpipers may continue to visit grassland habitats in eastern Washington but it is unknown what factors influence colonization of suitable habitat. Therefore, it is not known whether unoccupied suitable habitat exists or whether habitat enhancement is necessary to attract colonizing nesters to habitat in Washington.

Many factors which may affect Washington upland sandpiper numbers exert their influence well outside of the state's borders. White (1988) speculated that space and food resources on the wintering grounds may limit numbers. The land area available for wintering upland sandpipers in temperate regions of South America is much less than the breeding range of the species in North America. The birds are quite concentrated on the wintering grounds. The status and future of habitat availability on the wintering grounds are not known.

The history of upland sandpiper nesting in the Pacific Northwest suggests that much of eastern Washington is within the potential breeding range of the species and that colonization of presently unoccupied areas is a possibility. For this reason, a broad range of factors that bear on the suitability of habitats in eastern Washington are important to the continued existence of upland sandpipers in the state. The more important of these factors are covered in the following sections.

## Present and Threatened Habitat Loss

Habitat loss has played a key role in endangering the upland sandpiper in Washington. The combination of residential development, wetland drainage, over-grazing, gravel mining, and the spread of spotted knapweed have reduced the quantity and quality of upland sandpiper habitat in the east Spokane Valley to a level where it is unlikely that birds will persist in the area.

## Low Population

Upland sandpipers in Washington are widely separated from the species' core breeding range. The relationship of Washington upland sandpipers to the relatively large upland sandpiper populations of the midwestern United States is unknown. Recent surveys have found few birds and no strong evidence of nesting since 1987. Although a small number of birds have been present in Washington during recent years, loss of the upland sandpiper as a breeding bird appears likely in the near future.

## Grazing

Grazing has received considerable attention in studies of impacts of land uses on nesting upland sandpipers. Grazing changes plant community characteristics which influence whether an area is selected for nesting or foraging by upland sandpipers. Hatching success as well is affected by grazing. Occasionally, nesting attempts fail due to trampling by livestock (Bowen and Kruse 1993, Herman et al. 1985, Bolster 1990, Kirsch and Higgins 1976).

In a study of upland sandpiper hatching success in North Dakota, brood production was found to be highest in undisturbed grassland and burned grassland. Annually tilled croplands and grazed grasslands were less productive (Kirsch and Higgins 1976). Bowen and Kruse (1993) found that spring grazing had a negative impact on nest density. Fall grazing did not appear to impact nest density. However, their study also found that tall, dense vegetation was avoided by the sandpipers. Spring grazing may prevent growth of grasses to optimal height and density due, in part, to low rainfall in this region. Studies in more southerly portions of the Great Basin, where rainfall is greater, suggest that grazing may benefit upland sandpipers (Bowen and Kruse 1993). The physical presence of cattle in an area may influence the sandpipers' choice of a nesting site. This factor complicates an understanding

of the impact of grazing on nesting. The negative correlation between spring grazing and nest density could result from vegetation changes associated with grazing or it could reflect a response to the physical presence of cows.

Skinner (1982) studied vegetation structure and bird habitat selection on Missouri prairies and concluded that grazing was the most versatile management practice. Stocking rate could be adjusted to provide all cover conditions from tall to short.

In Oregon, Herman et al. (1985) noted that intense grazing which resulted in reduced grass density and vigor was probably responsible for the exclusion of upland sandpipers from portions of their study area.

## Fire

Some studies have concluded that fire has potential benefits to upland sandpipers. In eastern Washington there are regions where fire may serve to temporarily remove shrubs and provide a predominantly grassland environment until the shrubs reinvade. However, soil and climate in other areas provide for grassland communities that do not develop a shrub layer (Daubenmire 1970). In Saskatchewan, Canada, Pylpec (1991) found upland sandpipers on a grassland study plot in the second nesting season after controlled burning of the plot. Upland sandpipers were not found on the unburned plot. Kirsch and Higgins (1976) recommended prescribed burns on a three-year rotation. Many of Maine's grassland-barrens areas are burned and mowed on a biennial basis and the largest of these areas are frequently used by upland sandpipers (Vickery et al. 1994).

## Interspecific Relationships

Probably the most significant interspecific relationship affecting upland sandpiper populations involves predators. Bowen and Kruse (1993), working in North Dakota, found 93 of 95 nest destructions were due to predation, the other two were trampled by cows. Predators may also be an influence on the Colorado population. Coyotes (*Canis latrans*) were mentioned as one probable predator in an upland sandpiper study area (Bolster 1990); and raccoons were also considered a potentially serious predator on nests in the same study area. The author observed raccoons actively foraging in areas where upland sandpipers were known to nest. Musselman (1935) documented raccoon predation on upland sandpiper nests in Illinois.

Bowen (1976) determined that 11 of 27 upland sandpiper nests were lost to predators in his Kansas study area. Here, upland sandpipers often nested in colonies and nests within colonies were less likely to be lost than those outside of colonies. The mobbing behavior of adult upland sandpipers was suggested as a probable reason for lower nest mortality within colonies.

White (1988) studied the wintering distribution of upland sandpipers in South America. Information he assembled suggests that predation on the wintering grounds is probably minimal. Foxes are not abundant in areas that upland sandpipers frequent and other mammalian predators are unlikely to take an upland sandpiper unless it is injured or roosting. Birds of prey are also not believed to take many sandpipers in this region.

## Disturbance

Buss (pers. comm.) reported that upland sandpipers are intolerant of human activities, including the presence of buildings. Quantitative data which describe this intolerance are lacking.

# CONCLUSION

It is likely that, without intervention, the upland sandpiper will be extirpated as a breeding bird in Washington in the near future. The small number of upland sandpipers that return to the east Spokane Valley each spring is cause for concern. A single factor or combination of factors such as reproductive failures or mortality could eliminate Washington's nesting birds. The probability of loss of the upland sandpiper as a breeding bird in Washington is even greater in light of the habitat degradation and loss that is likely to impact survival of adults, production of young, and colonization of the area by migrants.

# PART TWO

# RECOVERY

## RECOVERY GOALS

The purpose of the upland sandpiper recovery plan is to outline strategies which, when implemented, will enhance and increase upland sandpiper habitat and provide for regular and prolonged nesting of upland sandpipers in the state.

## RECOVERY OBJECTIVES

The upland sandpiper will be considered for downlisting to State Threatened status when the state supports:

1. Regular nesting as evidenced by a five-year average of at least 20 May-census adults.

2. Secure nesting and foraging habitat areas comprised of at least 10 sites at least 100 ha (247 ac) in size.

The upland sandpiper will be considered for downlisting from State Threatened status when the state supports:

1. Regular nesting as evidenced by a five-year average of at least 50 May-census adults.

2. Secure nesting and foraging habitat areas comprised of at least 25 sites at least 100 ha (247 ac) in size.

### Rationale

The recovery goal for the upland sandpiper in Washington is to secure adequate quantities of habitat to enable upland sandpipers to regularly breed in the state. It is assumed that upland sandpipers in the Pacific Northwest are normally represented by scattered pairs and small colonies of nesting birds. Throughout the upland sandpiper's breeding range, habitat area requirements for multiple pairs and small colonies range from 86 to 500 ha (212 to 1,236 ac) in size. Based on this information and consideration that habitat area requirements may be different on this western edge of the species' geographic range, habitat areas in eastern Washington should be a minimum of 100 ha (247 ac) in size.

It is not anticipated that upland sandpipers will occupy all available habitat every year. It is assumed that natural dynamics result in periodic local extirpation and colonization and the key to prolonged presence of the species is habitat availability. It is further recognized that the state's population goal of 50 May-census adults does not, by itself, constitute a viable population. Available information suggests that the species has been uncommon throughout

the Pacific Northwest over a span of at least the past century. It is unlikely that upland sandpipers nesting in the Pacific Northwest have persisted to the current day without emigration from larger breeding populations elsewhere in North America as the available evidence suggests that numbers have not been large enough to sustain a viable population over the long term. Long-term persistence of upland sandpipers in Washington will likely depend upon the presence of healthy populations in the core of the species' range with consistent straggling into fringe populations.

Reclassification criteria are based on the assumption that 100-500 ha (247-1,236 ac) areas of suitable habitat, perhaps in need of some enhancement, can be identified for upland sandpiper habitat management.

May-census counts of adults will be used as an indicator of nesting numbers. This parameter can be measured without intrusive nest search techniques. These criteria may be reassessed, and changed if necessary, as new information becomes available.

The following sections describe actions designed to promote population recovery to a level allowing reclassification. These include: monitoring the population, managing habitat, conserving upland sandpipers, enforcing restrictions, managing and sharing information, developing public education programs, completing research, coordinating with other agencies and landowners, and considering direct population management techniques.

## RECOVERY STRATEGIES AND TASKS

# 1. Monitor the Washington upland sandpiper population.

### 1.1. Conduct surveys to detect upland sandpiper presence.

At present, systematic surveys to index population trend are not practical because sandpipers are not being detected at all. Surveys should focus on areas like the east Spokane Valley where upland sandpipers were recently known to breed. In addition, surveys by experienced observers should be expanded to include additional eastern Washington localities and areas of historic occurrence. Guidance for such surveys should come from examination of habitat characteristics at upland sandpiper breeding areas in Oregon and Idaho. Surveys in early May are most likely to be successful in locating upland sandpipers on their breeding grounds.

### 1.2. Monitor upland sandpiper numbers through annual surveys.

In the future, when populations become established, conduct an annual inventory of the numbers, location, and productivity of upland sandpipers to provide baseline data from which to monitor population trends, recruitment, changes in distribution, and other population parameters. Guidelines need to be developed to maximize the efficiency and accuracy of the surveys and to minimize disturbance. Annual surveys should also attempt to detect existing and potential threats to sandpipers and their habitats as well as provide a database from which to measure the success of management efforts.

# 2. Manage habitat to maximize upland sandpiper abundance and productivity.

The east Spokane Valley site, while potentially important in the short term, is not a good candidate for long term management for upland sandpipers because of the condition of the habitat and continuing human development. Short-term values include the potential that upland sandpipers that return to the area may produce offspring that will colonize other areas or that they will play a role in bringing birds to Washington from the wintering grounds. Potential short-term values should receive consideration unless upland sandpipers fail to return to the site during the life of this plan (through 1999).

### 2.1. Identify lands that are potentially suitable for upland sandpipers, giving priority to public lands.

In Washington, sites where habitat will be enhanced and managed for upland sandpipers must be identified. Data from throughout the species' breeding range suggest that upland sandpipers may need 86-500 ha (212-1,236 ac) of habitat. The amount of habitat and space required for the achievement of the recovery objective must be refined as new information is obtained.

Upland sandpiper nesting habitat requirements are well known in some parts of the species' range. This information will necessarily be the main guidance in a search for areas to manage for upland sandpipers. Areas should be evaluated for their potential for habitat restoration and maintenance, and their potential to eventually support breeding sandpipers.

Priorities for habitat enhancement will be publicly-owned lands in eastern Washington counties with recent or historic sightings of upland sandpipers. These include Spokane, Walla Walla, Whitman, Adams, Asotin, Kittitas, Benton, Grant, Yakima, and Okanogan counties. Adjacent counties (Pend Oreille, Stevens, Ferry, Lincoln, Franklin, Klickitat, Douglas, Columbia, and Garfield) will be next in priority.

Existing habitat conditions and surrounding land uses are important initial considerations in the identification of potential upland sandpiper habitat. Native grasslands and wet meadows are generally suitable. Certain types of land uses, such as grazing cattle and producing grain or hay crops, appear to be compatible with upland sandpipers, particularly for providing foraging habitat. These and similar land uses have the highest potential to coexist with upland sandpipers. These compatible land uses, on adjacent parcels, will complement management efforts directed specifically toward providing upland sandpiper habitat.

Turnbull National Wildlife Refuge is a clear candidate for efforts to establish a nesting area. Management is already dedicated to wildlife, upland sandpipers historically nested here, and it is geographically close to the last site used by nesting upland sandpipers, the Spokane Valley. Chief Joseph Wildlife Area in Asotin County is another good candidate for habitat enhancement projects aimed at attracting upland sandpipers. Other areas suitable for habitat enhancement efforts need to be identified.

## 2.2. Evaluate identified lands for their existing and potential habitat values.

### 2.2.1. Establish a site evaluation method.

Develop a method for evaluating potential upland sandpiper habitat areas. The method should include an assessment of existing habitat conditions, existing land uses, land ownership, threats to existing habitat, and size and continuity of existing habitat. The site evaluation method should also assess enhancement opportunties and their costs.

2.2.2. Conduct site evaluations for identified areas.

Once potential upland sandpiper habitat areas have been identified and an evaluation method developed, site evaluations can begin. Site evaluations should be finalized in a report format that can be reproduced and distributed to agency staff, landowners, and others.

**2.3. Pursue management of selected upland sandpiper habitats by wildlife agencies.**

In some areas, existing and future land uses on private and non-wildlife agency lands may be compatible with upland sandpiper habitat needs. This is particularly likely for foraging habitat. Nesting habitat is less likely to be provided by existing land uses and may need to be developed through intensive and experimental tehniques. For these lands, management by wildlife agencies is most critical.

2.3.1. Influence management of public lands where upland sandpiper habitat can be created or enhanced.

After identifying sites on public land that appear suitable for managing for upland sandpipers, efforts should be directed toward gaining influence in habitat management decisions and the implementation of habitat enhancement activities. This will require coordination and cooperation with the land manager.

2.3.2. Evaluate and, if warranted, acquire lands through purchase, land exchange, or charitable donation.

Certain key components of upland sandpiper habitat, such as nesting habitat, may be best managed exclusively for the purpose of providing habitat for upland sandpipers. Federal or state lands managed for wildlife will likely be the best candidates for experimental habitat enhancement efforts. This effort will involve substantial exploratory scoping and interagency coordination.

Potential privately-owned lands with willing sellers should also be identified, if necessary, to complement existing federal and state lands. Explore options for acquisition: land exchange, conservation easements, and cooperative agreements to provide a limiting resource such as nesting habitat. Lands may be designated as Wildlife Areas, Natural Area Preserves, or Conservation Areas.

## 2.4. Enhance, restore, and manage habitat for upland sandpipers.

Sites identified as most suitable for management as upland sandpiper habitat areas should be managed to provide the best possible conditions for upland sandpiper nesting, foraging, loafing, and brood rearing. Because of widespread habitat degradation, extraordinary means of habitat rehabilitation may be necessary. Nesting habitat will likely be the limiting factor in most areas and should therefore receive the greatest attention. Lands may need grading, planting, herbicide treatment, irrigation, or other treatments to attain desirable characteristics.

2.4.1. Develop and apply techniques which create and sustain habitat characteristics that benefit sandpipers.

At this time, the absence of extensive habitats dominated by grasses, forbs, and other suitable vegetation is probably limiting opportunities to increase upland sandpiper numbers in Washington. To meet upland sandpiper habitat needs, a variety of grassland conditions should be available within an upland sandpiper habitat area. These range from the open, short vegetation commonly used for foraging to the tall grass and grass-forb communities preferred for nesting. Information on upland sandpiper habitat use in the western United States suggests that these habitats are central to the species' habitat needs. Techniques for creating these kinds of habitats need to be developed.

Agency resources will likely need to be directed toward development of nesting habitat in areas where foraging habitats are already available. Nesting habitat can be compromised by spring grazing and crop harvest operations and is therefore less likely to be adequately provided by private landowners. Initial habitat enhancement efforts in Washington should be directed at enhancing wet meadow and grass dominated landscapes at least 100 ha (247 ac) in size. It is expected that habitat enhancements will often focus on creating nesting habitat in areas where much of the surrounding landscape is already suitable for upland sandpiper foraging, loafing, and brood rearing. The nesting habitat portion of an upland sandpiper habitat area can be a small fraction of the area actually used by the birds. The appropriate size of the nesting habitat area is a subject for experimentation and adjustment.

## 2.5. Work with adjacent landowners to manage grazing, hay mowing, and other activities to the benefit of sandpipers.

To be compatible with upland sandpipers, grazing and crop production need to be managed with the needs of sandpipers in mind. This necessitates

cooperation and communication between wildlife professionals and landowners so that biological information can be used to adjust and refine land use practices to meet sandpiper habitat requirements as well as landowner needs.

2.5.1. Provide management recommendations to landowners.

Specific conservation recommendations and management actions should be discussed with private landowners. Appropriate strategies may include, but are not limited to, voluntary protection agreements and management agreements, or regulatory protection via the State Environmental Policy Act or local Critical Area Ordinances. Strategies can be developed for separate parcels which benefit both sandpipers and the landowners.

### 2.6. Discourage development activity that will destroy or degrade sandpiper habitat.

Subdivisions, commercial development, and many kinds of crops create human disturbance levels and vegetative cover conditions that detract from an area's ability to support upland sandpipers. These land uses should be discouraged or limited in landscapes being managed for upland sandpipers.

## 3. Conserve and enhance the upland sandpiper population.

### 3.1. Address factors which keep numbers below habitat capability.

Factors limiting the numbers and breeding success of sandpipers should be identified and management strategies developed and implemented to reduce or eliminate their effects. Successful nesting by even one or two pairs of sandpipers returning to Washington may be important in the future. They may provide offspring that will colonize suitable habitat in the future or they may play a role in attracting birds to Washington from the wintering grounds.

3.1.1. Reduce human disturbance in sandpiper habitat.

Human activities in or near upland sandpiper nesting habitat can reduce nesting success. Housing developments, gravel pits, roads, trails, and other human uses in and adjacent to upland sandpiper habitat make the area less suitable for upland sandpipers. Upland sandpiper habitat management will require consideration of human disturbances at a landscape level. Guidance may be obtained by studying disturbance patterns in upland sandpiper nesting areas elsewhere in the U.S. or

Canada.

3.1.2. Reduce predation.

Mammalian and avian predators may be a threat to upland sandpipers when numbers are low. Consideration should be given to measures that would reduce the potential for predators to take upland sandpipers.

3.1.2.1. Evaluate the need to control predators.

Predation of upland sandpiper nests is almost never directly observed, but evidence at and near sites of predated nests often suggest the responsible species. Predation incidents should be described during monitoring surveys. Investigations should be pursued to determine the relative impacts of various predator species so that appropriate responses may be determined.

3.1.2.2. Implement predator control measures as necessary.

Removal or exclusion of predators by live-trapping, nest destruction, poisoning, shooting, or fencing may be implemented if determined to be both effective and reasonable.

## 4. Enforce restrictions designed to protect upland sandpipers.

At this time, harming, harassing, or killing sandpipers or destroying nests or eggs are the primary activities prohibited by law. The few upland sandpipers that are found in Washington each year are important to protect from all sources of mortality.

Although not designed specifically to protect upland sandpipers, Washington's Growth Management Act is a mandate for local governments to identify and provide protection for critical habitat of threatened and endangered species. This process in currently underway. The Department should be involved in the identification of critical habitat and the development of protection ordinances which pertain to that habitat.

Additional regulations that might apply to upland sandpipers and their habitat are few. Federal, state, and local wetlands protection measures may aid habitat conservation in some areas.

## 5. Establish information management systems and provide for information sharing.

Ready access to information gathered during surveys and investigations will be critical

for management decision makers. A centralized information system, Wildlife Information Systems, exists at the Department of Wildlife. Summaries of data should be prepared annually and distributed to interested persons and agencies.

### 5.1. Maintain repository for upland sandpiper records.

Survey data should be submitted to Wildlife Survey Data Management at the earliest opportunity following data collection. Data entry, manual storage, and incorporation into a Geographic Information System should be done as appropriate.

### 5.2. Produce an annual upland sandpiper status review.

A report describing the status of the upland sandpiper population, as well as management activities and their effects, should be prepared and distributed each year.

### 5.3. Create information exchange network between appropriate agencies.

Regular exchanges of information between state and federal agencies involved in upland sandpiper management will assist in assessment of local and regional trends.

## 6. Develop and initiate appropriate public information and education programs.

### 6.1. Develop educational materials and participate in education programs.

Local support for a landscape level approach to enhancing upland sandpiper habitat may be gained through development of quality educational materials. Fact sheets should be developed for distribution within communities. Posters could also serve to communicate messages about the upland sandpiper's special needs. A video and/or slide show describing the plight of the upland sandpiper and recovery efforts should be produced.

### 6.2. Promote media contact.

Encourage the production of news releases, public service announcements, and articles in newspapers and magazines.

### 6.3. Evaluate education requirements of particular groups.

Investigate the need for development of education materials and programs for schools, community groups, and other special groups.

## 7. Undertake scientific investigations that will facilitate and enhance recovery efforts.

Much remains to be learned in Washington and throughout the range of the upland sandpiper about the species' migration, sensitivity to disturbance, life span, habitat use patterns, food habits, and other biological processes. Because upland sandpipers are difficult to locate, a radio telemetry study should be emplyed at the first opportunity. Washington biologists should develop survey methods to monitor trends in habitat availability and upland sandpiper abundance. They should also remain abreast of research and management activities elsewhere in the upland sandpiper range. Washington should be a supporter and, where possible, active participant in research designed to better understand upland sandpipers and their needs.

**7.1. Determine the effects of human disturbance on habitat use, foraging behavior, growth, and survival of sandpipers.**

**7.2. Determine vegetation and other habitat features important to nesting and foraging sandpipers.**

**7.3. Determine primary prey base of sandpipers and temporal changes in diet and foraging ecology.**

**7.4. Determine survivorship and recruitment patterns at breeding areas.**

## 8. Coordinate and cooperate with public agencies and other landowners.

If new, occupied upland sandpiper areas are found, ownership will need to be determined to allow coordination of management activities with land owners and land managers. Assessments of short-term and long-term management potential for new upland sandpiper sites will need to be completed.

Where existing regulatory mechanisms and management plans are deemed inadequate or in conflict, they may require modification to support recovery objectives.

**8.1. Revise appropriate State regulations to reflect current situations.**

Review regulations concerning activities such as wetland modification for compatibility with recovery goals.

**8.2. Review local and agency land use plans and recommend measures to benefit upland sandpipers.**

Review the Growth Management Act and assist local governments in fulfilling

its intentions for conservation of habitat for upland sandpipers. The long-term persistence of upland sandpipers as a breeding species in Washington is probably dependent upon establishment of extensive areas where landscape features are attractive to upland sandpipers. This will require control of human densities to maintain a rural environment with patches of wet meadow or other grassland nesting habitat, crop lands that provide vertical structure during the nesting season, and lightly grazed pasture lands. County land use plans or critical wildlife habitat designations provide one tool for achieving these landscape objectives.

## 9. Consider direct population management techniques.

Washington's upland sandpipers may be part of a larger population which interacts primarily on the wintering grounds in South America. This larger population, and any offspring from birds breeding in Washington, would be the likely source of new individuals to recolonize restored habitat in Washington. As long as upland sandpipers continue to visit Washington, either as breeders or as visiting migrants, captive breeding and translocation of birds may not be necessary. However, captive breeding and translocation of birds should be maintained as an option.

### 9.1. Investigate introduction of captive-reared or wild-caught juveniles or family groups.

Consider the introduction of captive-reared or wild-caught juveniles or family groups originating from areas that sustain healthy populations. Studies of the genetic relationships of upland sandpipers from different portions of the breeding range should be conducted so that this information can be considered as part of any translocation project.

### 9.2. Investigate feasibility of captive breeding programs.

Evaluate the feasibility of captive breeding of upland sandpipers for production of young to be introduced into the wild.

### 9.3 Consider and experiment with other techniques for attracting colonizing upland sandpipers.

Techniques involving the use of decoys, broadcast calls; or placement of pinioned adults, should be tested and considered. These unproven techniques may help attract migrating upland sandpipers to areas being managed for upland sandpipers. These and other experimental techniques should be investigated and, if found to have merit, attempted in the field.

## REFERENCES CITED


Akenson, H. 1991. Status of the upland sandpiper in Umatilla and Union counties, Oregon. Unpubl. Rep. to Oreg. Dept. Fish and Wildl., Portland. 16pp.

_____ . 1992. Upland sandpiper survey protocol for the Blue Mountains of Oregon and Washington. Unpubl. Rep. to Willowa-Whitman Nat. For., Baker City, Oreg. 33pp.

_____ . 1993. Upland sandpiper habitat use and breeding biology at Logan Valley and Marley Creek, Oregon - progress report 1993. Unpubl. Rep. to Oreg. Dept. of Fish and Wildlife, Portland. 15pp.

_____ , and E. Bottum. 1992. Marley Creek upland sandpiper site intensive survey. Unpubl. Rep. to Wallowa-Whitman Nat. For., La Grande, Oreg. 5pp.

Ailes, I. W. 1976. Ecology of the upland sandpiper in central Wisconsin. M.S. Thesis. Univ. of Wisconsin, Stevens Point. 63pp.

_____ . 1980. Breeding biology and habitat use of the upland sandpiper in central Wisconsin. Passenger Pigeon 42:53-63.

_____ , and J. E. Toepfer. 1977. Home range and daily movement of radio-taggedupland sandpipers in central Wisconsin. Inland Bird Banding News 49(5):203-212.

American Ornithologists' Union. 1983. Checklist of North American Birds, 6th Ed. Allen Press Inc., Lawrence, Kansas. 877pp.

Beck, H. H. 1956. Status of the upland plover in Lancaster County, Pennsylvania. Auk 73:202-204.

Bent, A. C. 1929. Life histories of North American shore birds. U.S. Natl. Mus. Bull. 146: 55-69.

Bollinger, E. K. 1991. Conservation of grassland birds in agricultural areas. Pages 279-288 *in* D. J. Decker (ed.). Westview special studies in natural resources and energy management: challenges in the conservation of biological resources: a practitioner's guide. Westview Press, Boulder, Colorado. 402pp.

Bolster, D. C. 1990. Habitat use by the upland sandpiper in Northeastern Colorado. M.S. Thesis. Univ. of Colorado, Boulder. 104pp.

Bowen, B. S. and A. D. Kruse. 1993. Effects of grazing on nesting by upland sandpipers in southcentral North Dakota. J. Wildl. Manage. 57(2):291-301.

Bowen, D. E. 1976. Coloniality, reproductive success, and habitat interactions in upland sandpipers (*Bartramia longicauda*). M.S. Thesis. Kansas St. Univ. Manhattan. 127pp.

Buhnerkempe, J. E. and R. L. Westemeier. 1988. Breeding biology and habitat of upland sandpipers on prairie-chicken sanctuaries in Illinois, USA. Trans. Ill. State Acad. Sci. 81(1-2):153-162.

Buss, I. O. 1951. The upland plover in southwestern Yukon Territory. Arctic 4:204-213.

_____ , and Arthur S. Hawkins. 1939. The upland plover at Faville Grove, Wisconsin. The Wilson Bull. 87:202-220.

Cannings, R. A., R. J. Cannings, and S. G. Cannings. 1987. Birds of the Okanagan Valley, British Columbia. Royal British Columbia Mus., Victoria. 420pp.

Daubenmire, R. 1970. Steppe vegetation of Washington. Wash. Agric. Exp. Stn., Tech. Bull. 62. 131pp.

Dawson, W. L., and J. H. Bowles. 1909. The birds of Washington. Occidental Publ. Co., Seattle. 458pp.

Dorio, J. C. and A. H. Grewe. 1979. Nesting and brood rearing habitat of the upland sandpiper. J. Minn. Acad. Sci. 45:8-11.

Falardeau, G., and J. DesGranges. 1991. Habitat selection and recent population fluctuations of birds in agricultural environments in Quebec. Can. Field Nat. 105(4):469-482.

Gabrielson, I. N. and S. G. Jewett. 1970. Birds of the Pacific Northwest, with special reference to Oregon. Dover Publ., Inc. New York. 650pp.

Hayman, P., J. Marchant, and T. Prater. 1986. Shorebirds: An identification guide to the waders of the world. Houghton Mifflin Co., Boston. 412pp.

Herman, S. G., J. W. Scoville, and S. G. Waltcher. 1985. The upland sandpiper in Bear Valley and Logan Valley, Grant County, Oregon. Unpubl. Rep. 24pp.

Higgins, K. F., and L. M. Kirsch. 1975. Some aspects of the breeding biology of the upland sandpiper in North Dakota. Wilson Bull. 87(1):96-102.

Jewett, S. G., W. P. Taylor, W. T. Shaw, and J. W. Aldrich. 1953. Birds of Washington State. Univ. Wash. Press, Seattle. 767pp.

Johnsgard, P. A. 1981. The plovers, sandpipers, and snipes of the world. Univ. Nebr. Press, Lincoln.

Johnson, D. H. 1991. Further comments on estimating nest success. Ibis 133:205-207.

Kaiser, P. H. 1979a. Upland sandpiper nesting in southeastern South Dakota. Proc. N.D. Acad. Sci. 33:5.

_____. 1979b. Upland sandpiper nesting in southeastern South Dakota. Proc. S.D. Acad. Sci. 58:59-68.

Kantrud, H. A., and K. F. Higgins. 1992. Nest and nest site characteristics of some ground-nesting, non-passerine birds of northern grasslands. Prairie Nat. 24(2):67-84.

King, M. L., W. L. Myers, and T. Gruenwald. 1991. A study of upland sandpiper habitat use and potential impacts from powerline construction in Spokane County, Washington, 1986-1989. Unpubl. Rep. Wash. Dept. Wildl., Spokane. 12pp.

Kirsch, L. M. and K. F. Higgins. 1976. Upland sandpiper nesting and management in North Dakota. Wildl. Soc. Bull. 4(1): 16- 20.

Larrison, E. J. and K. G. Sonnenberg. 1968. Washington Birds: their location and identification. Seattle Audubon Soc., Seattle. 258pp.

Lloyd, T. M. 1979. Upland sandpiper. Unpubl. Rept. Wash. Dept. Game, Olympia. 24pp.

Lokemoen, J. T. and H. F. Duebbert. 1974. Summer birds for a North Dakota prairie. S. D. Conserv. Digest 41:18-21.

Marshall, D. B. 1988. Status of the upland sandpiper in Oregon. Unpubl. Rep. to Oreg. Dept. Fish and Wildl. 23pp.

Musselman, T. E. 1935. Upland plovers (*Bartramia longicauda*) increasing in Adams County, Illinois. Auk 52:447.

Myers, J. P. 1979. The pampas shorebird community: interactions between breeding and nonbreeding members. Pp. 37-49 *in* J. A. Keast and E. S. Morton (Eds.). Migrant birds in the Neotropics; ecology, behavior, and conservation. Smithsonian Inst. Press, Washington.

National Geographic Society. 1987. Field guide to birds of North America. Second ed. 464pp.

Osborne, D. R. and A. T. Peterson. 1984. Decline of the upland sandpiper (*Bartramia longicauda*) in Ohio: an endangered species. Ohio J. Sci. 84:8-10.

Paulson, D. 1993. Shorebirds of the Pacific Northwest. Univ. Wash. Press. Seattle and London. 406pp.

Plage, P. n.d. Upland sandpiper habitat characterization. Unpubl. rept. New Jersey. 6pp.

Pylypec, B. 1991. Impacts of fire on bird populations in a fescue prairie. Can. Field Nat. 105(3):346-349.

Ritchie, R. J., and R. E. Ambrose. 1992. The status of selected birds in east-central Alaska. Can. Field Nat. 106(3):316-320.

Robbins, C. S., D. Bystrak, and P. H. Geissler. 1986. The Breeding Bird Survey: Its first fifteen years, 1965-1979. USDI, Fish and Wildlife Service, Res. Publ. 157.

Scoville, J. W. n.d. Status of upland sandpipers in Oregon. Unpubl. Rep. 18pp.

_____. 1991. 1991 Census of upland sandpipers of Grant, Umatilla, and Union counties, Oregon. Unpubl. Rep. to Oreg. Dept. Fish and Wildl. 16pp.

Skinner, R. M. 1982. Vegetation structure and bird habitat selection on Missouri prairies. PhD diss. Univ. of Missouri, Columbia. 224pp.

Snyder, D. L., V. Riemenschneider, and V. W. Inman. 1987. The upland sandpiper, *Bartramia longicauda*, breeding area in South Bend, Indiana. Proc. Indiana Acad. Sci. 96(1987):537-542.

Stern, M. A. and G. A. Rosenberg. 1985. Occurence of a breeding upland sandpiper at Sycan Marsh, Oregon. Murrelet 66:34-35.

Stout, G. D., P. Matthiessen, R. V. Clem, and R. S. Palmer. 1967. The shorebirds of North America. The Viking Press. New York. 270pp.

Thieman, L. 1987. Upland sandpiper evaluation study, conducted from May 1 to June 30, 1987. Unpubl. Rep. Wash. Dept. Wildl., Spokane. 9pp.

van den Driessche, R., S. D. McConnell, and T. D. Hooper. 1994. First confirmed breeding record for the upland sandpiper, *Bartramia longicauda*, in British Columbia. Can. Field-Nat. 108(1):89-91.

Vickery, P. D., M. L. Hunter, and S. M. Melvin. 1994. Effects of Habitat Area on the distribution of grassland birds in Maine. Cons. Biol. 8(4):1087-1094.

Weber, J. W. and E. J. Larrison. 1977. Birds of southeastern Washington. Univ. Press of Idaho, Moscow. 66pp.

White, R. P. 1983. Distribution and habitat preference of the upland sandpiper (*Bartramia longicauda*) in Wisconsin. Am. Birds 37(1):16-22.

_____ . 1988. Wintering grounds and migration patterns of the upland sandpiper. Am. Birds 42(5):1247-1253.

Williams, K. M. 1986. Upland sandpiper habitat evaluation study, conducted between April and July 1986. Unpubl. Rep. Wash. Dept. Game. 16pp.

Wilson, S. D. and J. W. Belcher. 1989. Plant and bird communities of native prairie and introduced Eurasian vegetation in Manitoba, Canada. Conserv. Biol. 3(1):39-44.

## PERSONAL COMMUNICATIONS

Holly Akenson, Wildlife Biologist
62361 Leffel Rd.
La Grande, Oregon 97850

Bonnie Bowen, Research Biologist
Northern Prairie Wildlife Research Center
Rt 1 Box 96C
Jamestown, North Dakota 58401

Irven O. Buss, Zoology Prof. (retired)
NE 1145 Orchard Dr
Pullman, Washington 99163

Leon Powers, Biology Prof.
Dept. of Biology,
Northwest Nazarene College
Nampa, Idaho 82686

Jerry Scoville, Wildlife Biologist
2325 King Street
Bellingham, Washington 98225

# PART THREE

# IMPLEMENTATION

## IMPLEMENTATION SCHEDULE

The outline of strategies and tasks on the following pages identifies Washington Department of Fish and Wildlife responsibilities, provides estimates of annual expenditures, and assigns priority to recovery tasks. All tasks identified herein are subject to the availability of funding for their completion.

**Priority 1** Actions necessary to halt the decline and prevent the extirpation of the species in Washington and to monitor the population.

**Priority 2** Actions meant to maintain the benefits of Priority 1 tasks and to enhance recovery efforts by stabilizing and rebuilding the population.

**Priority 3** Actions that provide direction for future conservation needs.

Acronyms and symbols used to indicate WDFW responsibilities are:

| | |
|---|---|
| **WLM** | Wildlife Management |
| **CTRL** | Wildlife Control |
| **RES** | Research |
| **WSDM** | Wildlife Survey Data Management |
| **HAB** | Habitat |
| **LAND** | Land Resources |
| **ENF** | Enforcement |
| **I&E** | Information and Education |

Step-down Outline and Implementation Schedule for Washington State Recovery Plan for the Upland Sandpiper, including Objectives and Strategies.

| | Priority | Duration | Responsibility | Annual cost in thousands of $ 95 | 96 | 97 | 98 | 99 |
|---|---|---|---|---|---|---|---|---|
| Monitor the Washington upland sandpiper population. | 1 | ongoing | WLM | - | - | - | - | - |
| 1.1. Conduct surveys to detect upland sandpiper presence | 1 | 3 years | WLM | 6 | 6 | 6 | - | - |
| 1.2. Monitor upland sandpiper numbers through annual surveys | 1 | ongoing | WLM | - | - | - | 6 | 6 |
| **Totals** | | | | **6** | **6** | **6** | **6** | **6** |
| Manage habitat to maximize sandpiper abundance and productivity. | 2 | - | - | - | - | - | - | - |
| 2.1. Identify lands that are potentially suitable for upland sandpipers. | 2 | 2 years | WLM | - | - | 3 | 3 | - |
| 2.2. Evaluate identified lands for their existing and potential habitat values. | 2 | 2 years | WLM | - | - | - | 6 | 6 |
| 2.3. Pursue management of selected sandpiper habitat by wildlife agencies. | 2 | 3 years | WLM, LAND | - | - | - | - | 3 |
| 2.4. Enhance, restore, and manage habitat for upland sandpipers | 2 | ongoing | WLM, LAND | - | - | - | 10 | 25 |
| 2.5. Work with adjacent landowners to manage land uses to benefit sandpipers. | 2 | 3 years | WLM, HAB | - | - | - | 1 | 1 |
| 2.6. Discourage developments that will destroy or degrade sandpiper habitat. | 1 | ongoing | HAB | 2 | 2 | 2 | 2 | 2 |
| **Totals** | | | | **2** | **2** | **5** | **22** | **37** |
| Conserve and enhance the Washington upland sandpiper population. | 2 | - | - | - | - | - | - | - |
| 3.1. Address factors which keep numbers below habitat capability. | 2 | 3 years | WLM, CTRL | - | - | 1 | 1 | 1 |
| **Totals** | | | | **-** | **-** | **1** | **1** | **1** |
| Enforce restrictions designed to protect upland sandpipers. | 1 | ongoing | HAB, ENF | 2 | 2 | 2 | 6 | 6 |
| **Totals** | | | | **2** | **2** | **2** | **6** | **6** |
| Establish information management and retrieval systems. | 2 | - | - | - | - | - | - | - |
| 5.1. Maintain repository for upland sandpiper records. | 1 | ongoing | WSDM | - | - | - | - | - |
| 5.2. Produce an annual upland sandpiper status review. | 2 | annually | WSDM | .5 | .5 | .5 | .5 | .5 |
| 5.3. Create information exchange network between appropriate agencies. | 2 | ongoing | WLM | - | - | - | - | - |
| **Totals** | | | | **.5** | **.5** | **.5** | **.5** | **.5** |
| Develop and initiate appropriate information and education programs. | 3 | - | - | - | - | - | - | - |
| 6.1. Develop educational materials. | 3 | 2 years | WLM, I&E | - | 6 | - | 6 | - |
| 6.2. Promote media contact. | 3 | ongoing | I&E | 1 | .5 | 1 | .5 | 1 |
| 6.3. Evaluate education requirements of particular groups. | 3 | periodically | I&E | - | 2 | - | 2 | - |
| **Totals** | | | | **1** | **8.5** | **1** | **8.5** | **1** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Undertake scientific investigations that will facilitate and enhance recovery efforts. | 1 | - | - | - | - | - | - | - |
| 7.1. Determine the effects of human disturbance on upland sandpipers. | 1 | when feasible | RES | - | - | ? | ? | ? |
| 7.2. Investigate importance of vegetation and other habitat features to sandpipers. | 1 | when feasible | RES | - | - | ? | ? | ? |
| 7.3. Determine primary prey base of sandpipers and foraging ecology. | 1 | when feasible | RES | - | - | ? | ? | ? |
| 7.4. Determine survivorship and recruitment patterns at breeding areas. | 2 | when feasible | RES | - | - | ? | ? | ? |
| **Totals** | | | | **-** | **-** | **?** | **?** | **?** |
| Coordinate and cooperate with public agencies and other landowners. | 2 | - | - | - | - | - | - | - |
| 8.1. Revise appropriate State regulations to reflect current situations. | 3 | periodically | WLM | - | 3 | - | 3 | - |
| 8.2. Review land use plans and recommend measures to benefit sandpipers. | 2 | ongoing | HAB | - | 3 | 3 | 3 | 3 |
| **Totals** | | | | **-** | **6** | **3** | **6** | **3** |
| Consider direct population management techniques for potential future use. | 2 | if necessary | WLM | - | - | - | ? | ? |
| 9.1. Investigate introduction of captive-reared or wild-caught juveniles. | 2 | if necessary | WLM | - | - | - | - | - |
| 9.2. Investigate feasibility of captive breeding programs. | 2 | if necessary | WLM | - | - | - | - | - |
| 9.3. Consider and experiment with other techniques for attracting colonizing upland sandpipers | 2 | 2 years | WLM | - | - | - | 1 | 1 |
| **Totals** | | | | **-** | **-** | **-** | **?** | **?** |
| **Grand Total** | | | | **11.5** | **25** | **18.5** | **50** | **54.5** |

# APPENDICES

## Appendix A. Washington Administrative Code 232-12-297. Section 11 addresses Recovery Plans.

**WAC 232-12-297 Endangered, threatened, and sensitive wildlife species classification.**

PURPOSE

1.1 The purpose of this rule is to identify and classify native wildlife species that have need of protection and/or management to ensure their survival as free-ranging populations in Washington and to define the process by which listing, management, recovery, and delisting of a species can be achieved. These rules are established to ensure that consistent procedures and criteria are followed when classifying wildlife as endangered, or the protected wildlife subcategories threatened or sensitive.

DEFINITIONS

For purposes of this rule, the following definitions apply:

2.1 "Classify" and all derivatives means to list or delist wildlife species to or from endangered, or to or from the protected wildlife subcategories threatened or sensitive.

2.2 "List" and all derivatives means to change the classification status of a wildlife species to endangered, threatened, or sensitive.

2.3 "Delist" and its derivatives means to change the classification of endangered, threatened, or sensitive species to a classification other than endangered, threatened, or sensitive.

2.4 "Endangered" means any wildlife species native to the state of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state.

2.5 "Threatened" means any wildlife species native to the state of Washington that is likely to become an endangered species within the forseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats.

2.6 "Sensitive" means any wildlife species native to the state of Washington that is vulnerable or declining and is likely to become endangered or threatened in a significant portion of its range within the state without cooperative management or removal of threats.

2.7 "Species" means any group of animals classified as a species or subspecies as commonly accepted by the scientific community.

2.8 "Native" means any wildlife species naturally occurring in Washington for purposes of breeding, resting, or foraging, excluding introduced species not found historically in this state.

2.9 "Significant portion of its range" means that portion of a species' range likely to be essential to the long term survival of the population in Washington.

LISTING CRITERIA

3.1 The commission shall list a wildlife species as endangered, threatened, or sensitive solely on the basis of the biological status of the species being considered, based on the preponderance of scientific data available, except as noted in section 3.4.

3.2 If a species is listed as endangered or threatened under the federal Endangered Species Act, the agency will recommend to the commission that it be listed as endangered or threatened as specified in section 9.1. If listed, the agency will proceed with development of a recovery plan pursuant to section 11.1.

3.3 Species may be listed as endangered, threatened, or sensitive only when populations are in danger of failing, declining, or are vulnerable, due to factors including but not restricted to limited numbers, disease, predation, exploitation, or habitat loss or change, pursuant to section 7.1.

3.4 Where a species of the class Insecta, based on substantial evidence, is determined to present an unreasonable risk to public health, the commission may make the determination that the species need not be listed as endangered, threatened, or sensitive.

DELISTING CRITERIA

4.1 The commission shall delist a wildlife species from endangered, threatened, or sensitive solely on the basis of the biological status of the species being considered, based on the preponderance of scientific data available.

4.2 A species may be delisted from endangered, threatened, or sensitive only when populations are no longer in danger of failing, declining, are no longer vulnerable, pursuant to section 3.3, or meet recovery plan goals, and when it no longer meets the definitions in sections 2.4, 2.5, or 2.6.

INITIATION OF LISTING PROCESS

5.1 Any one of the following events may initiate the listing process.

5.1.1 The agency determines that a species population may be in danger of failing, declining, or vulnerable, pursuant to section 3.3.

5.1.2 A petition is received at the agency from an interested person. The petition should be addressed to the director. It should set forth specific evidence and scientific data which shows that the species may be failing, declining, or vulnerable, pursuant to section 3.3. Within 60 days, the agency shall either deny the petition, stating the reasons, or initiate the classification process.

5.1.3 An emergency, as defined by the Administrative Procedure Act, chapter 34.05 RCW. The listing of any species previously classified under emergency rule shall be governed by the provisions of this section.

5.1.4 The commission requests the agency review a species of concern.

5.2 Upon initiation of the listing process the agency shall publish a public notice in the Washington Register, and notify those parties who have expressed their interest to the department, announcing the initiation of the classification process and calling for scientific information relevant to the species status report under consideration pursuant to section 7.1.

INITIATION OF DELISTING PROCESS

6.1 Any one of the following events may initiate the delisting process:

6.1.1 The agency determines that a species population may no longer be in danger of failing, declining, or vulnerable, pursuant to section 3.3.

6.1.2 The agency receives a petition from an interested person. The petition should be addressed to the director. It should set forth specific evidence and scientific data which shows that the species may no longer be failing, declining, or vulnerable, pursuant to section 3.3. Within 60 days, the agency shall either deny the petition, stating the reasons, or initiate the delisting process.

6.1.3 The commission requests the agency review a species of concern.

6.2 Upon initiation of the delisting process the agency shall publish a public notice in the Washington Register, and notify those parties who have expressed their interest to the department, announcing the initiation of the delisting process and calling for scientific information relevant to the species status report under consideration pursuant to section 7.1.

SPECIES STATUS REVIEW AND AGENCY RECOMMENDATIONS

7.1 Except in an emergency under 5.1.3 above, prior to making a classification recommendation to the commission, the agency shall prepare a preliminary species status report. The report will include a review of information relevant to the species' status in Washington and address factors affecting its status, including those given under section 3.3. The status report shall be reviewed by the public and scientific community. The status report will include, but not be limited to an analysis of:

7.1.1 Historic, current, and future species population trends.

7.1.2 Natural history, including ecological relationships (e.g., food habits, home range, habitat selection patterns).

7.1.3 Historic and current habitat trends.

7.1.4 Population demographics (e.g., survival and mortality rates, reproductive success) and their relationship to long term sustainability.

7.1.5 Historic and current species management activities.

7.2 Except in an emergency under 5.1.3 above, the agency shall prepare recommendations for species classification, based upon scientific data contained in the status report. Documents shall be prepared to determine the environmental consequences of adopting the recommendations pursuant to requirements of the State Environmental Policy Act (SEPA).

7.3 For the purpose of delisting, the status report will include a review of recovery plan goals.

PUBLIC REVIEW

8.1 Except in an emergency under 5.1.3 above, prior to making a recommendation to the commission, the agency shall provide an opportunity for interested parties to submit new scientific data relevant to the status report, classification recommendation, and any SEPA findings.

8.1.1 The agency shall allow at least 90 days for public comment.

8.1.2 The agency will hold at least one public meeting in each of its administrative regions during the public review period.

FINAL RECOMMENDATIONS AND COMMISSION ACTION

9.1 After the close of the public comment period, the agency shall complete a final status report and classification recommendation. SEPA documents will be prepared, as necessary, for the final agency recommendation for classification. The classification recommendation will be presented to the commission for action. The final species status report, agency classification recommendation, and SEPA documents will be made available to the public at least 30 days prior to the commission meeting.

9.2 Notice of the proposed commission action will be published at least 30 days prior to the commission meeting.

PERIODIC SPECIES STATUS REVIEW

10.1 The agency shall conduct a review of each endangered, threatened, or sensitive wildlife species at least every five years after the date of its listing. This review shall include an update of the species status report to determine whether the status of the species warrants its current listing status or deserves reclassification.

10.1.1 The agency shall notify any parties who have expressed their interest to the department of the periodic status review. This notice shall occur at least one year prior to end of the five year period required by section 10.1.

10.2 The status of all delisted species shall be reviewed at least once, five years following the date of delisting.

10.3 The department shall evaluate the necessity of changing the classification of the species being reviewed. The agency shall report its findings to the commission at a commission

meeting. The agency shall notify the public of its findings at least 30 days prior to presenting the findings to the commission.

10.3.1 If the agency determines that new information suggests that classification of a species should be changed from its present state, the agency shall initiate classification procedures provided for in these rules starting with section 5.1.

10.3.2 If the agency determines that conditions have not changed significantly and that the classification of the species should remain unchanged, the agency shall recommend to the commission that the species being reviewed shall retain its present classification status.

10.4 Nothing in these rules shall be construed to automatically delist a species without formal commission action.

RECOVERY AND MANAGEMENT OF LISTED SPECIES

11.1 The agency shall write a recovery plan for species listed as endangered or threatened. The agency will write a management plan for species listed as sensitive. Recovery and management plans shall address the listing criteria described in sections 3.1 and 3.3, and shall include, but are not limited to:

11.1.1 Target population objectives.

11.1.2 Criteria for reclassification.

11.1.3 An implementation plan for reaching population objectives which will promote cooperative management and be sensitive to landowner needs and property rights. The plan will specify resources needed from and impacts to the department, other agencies (including federal, state, and local), tribes, landowners, and other interest groups. The plan shall consider various approaches to meeting recovery objectives including, but not limited to regulation, mitigation, acquisition, incentive, and compensation mechanisms.

11.1.4 Public education needs.

11.1.5 A species monitoring plan, which requires periodic review to allow the incorporation of new information into the status report.

11.2 Preparation of recovery and management plans will be initiated by the agency within one year after the date of listing.

11.2.1 Recovery and management plans for species listed prior to 1990 or during the five years following the adoption of these rules shall be completed within five years after the date of listing or adoption of these rules, whichever comes later. Development of recovery plans for endangered species will receive higher priority than threatened or sensitive species.

11.2.2 Recovery and management plans for species listed after five years following the adoption of these rules shall be completed within three years after the date of listing.

11.2.3 The agency will publish a notice in the Washington Register and notify any parties who have expressed interest to the department interested parties of the initiation of recovery plan development.

11.2.4 If the deadlines defined in sections 11.2.1 and 11.2.2 are not met the department shall notify the public and report the reasons for missing the deadline and the strategy for completing the plan at a commission meeting. The intent of this section is to recognize current department personnel resources are limiting and that development of recovery plans for some of the species may require significant involvement by interests outside of the department, and therefore take longer to complete.

11.3 The agency shall provide an opportunity for interested public to comment on the recovery plan and any SEPA documents.

CLASSIFICATION PROCEDURES REVIEW

12.1 The agency and an ad hoc public group with members representing a broad spectrum of interests, shall meet as needed to accomplish the following:

12.1.1 Monitor the progress of the development of recovery and management plans and status reviews, highlight problems, and make recommendations to the department and other interested parties to improve the effectiveness of these processes.

12.1.2 Review these classification procedures six years after the adoption of these rules and report its findings to the commission.

AUTHORITY

13.1 The commission has the authority to classify wildlife as endangered under RCW 77.12.020. Species classified as endangered are listed under WAC 232-12-014, as amended.

13.2 Threatened and sensitive species shall be classified as subcategories of protected wildlife. The commission has the authority to classify wildlife as protected under RCW 77.12.020. Species classified as protected are listed under WAC 232-12-011, as amended. [Statutory Authority: RCW 77.12.020. 90-11-066 (Order 442), § 232-12-297, filed 5/15/90, effective 6/15/90.]

Appendix B. Upland sandpiper sightings reported in Washington. Where multiple observations were available for a given location and year, a single observation representing the high count was selected for inclusion in the Appendix.

| Location | County | Date | Number[a] | Source |
|---|---|---|---|---|
| West Walla Walla Co. | Walla Walla | 4/22/05 | heard | Dawson and Bowles (1909) |
| Stubblefield Lake | Spokane | 7/20/28 | 1 Ad, 1 juv. | Jewett et al. (1953) |
| Indian Prairie | " | 6/16/29 | 1 Ad | Hudson and Yocom (1954) |
| Stubblefield Lake | " | 8/2/29 | 1 Ad | Hudson and Yocom (1954) |
| Newman Lake | " | 6/28/40 | noted | J. Sloanaker |
| Newman Lake | " | 6/24/41 | 4 Ads | Hudson and Yocom (1954) |
| Turnbull NWR | " | 6/15/48 | 1 Ad | Hudson and Yocom (1954) |
| Near Touchet | Walla Walla | 7/28/48 | 1 Ad | Weber and Larrison (1977) |
| Near Newman Lake | Spokane | 5/15/49 | 2 Ads | Hudson and Yocom (1954) |
| So. of Turnbull NWR | " | 9/1/54 | 1 Ad | Weber and Larrison (1977) |
| East Spokane Valley | " | 5/20/56 | 12 Ads | W. Hall |
| East of Spokane | " | 5/18/57 | 4 Ads | W. Hall |
| Near Newman Lk station | " | summer 57 | noted | W. Hall |
| Hauser Lk & Greenacres | " | 5/15/58 | 4 Ads | W. Hall, L. LaFave |
| Moab | " | 5/30/59 | 2 Ads | L. LaFave |
| Hauser junction | " | 5/30/59 | 3 Ads | L. LaFave |
| Barker Road | " | 5/31/59 | 2 Ads | Spokane Bird Club |
| Hauser Lk junction | " | 5/7/60 | 4 Ads | W. Hall |
| Hauser Lk junction | " | 5/7/61 | 2 Ads | S. Stanley |
| Moab | " | 5/4/62 | 2 Ads | W. Hall |
| Hauser junction | " | 5/12/62 | 1 Ad | Spokane Bird Club |
| East Spokane Valley | " | 5/29/63 | 1 Ad | J. Acton |
| Hauser Lk junction | " | 7/4/64 | 6 Ads | L. LaFave |
| Barker road | " | 5/16/65 | 4 Ads | Spokane Audubon |
| Near Newman Lk | " | 6/12/65 | nest, 4 eggs | W. Hall |
| Idaho Road | " | 5/16/65 | 2 Ads | J. Acton |
| Newman Lk junction | " | 5/8/66 | noted | W. Hall |
| Idaho Road | " | 5/14/66 | noted | J. Acton |
| East Spokane Valley | " | 5/14/67 | 2 Ads | J. Acton |
| Near Newman Lk | " | 5/21/67 | 2-3 Ads | W. Hall |
| Near Greenacres | " | 5/22/68 | noted | W. Hall |
| Spokane Valley | " | 5/23/68 | 2 Ads | J. Acton |
| Newman Lk junction | " | 5/18/69 | 4 Ads | W. Hall |
| Cascade valley, Moses Lk | Grant | 5/20/69 | noted | B. Braunwart |
| Idaho Road | Spokane | 5/17/70 | 2 Ads | J. Acton |
| Idaho Road | " | 5/8/71 | 3 Ads | J. Acton |
| Near Newman Lk | " | 5/9/71 | 3-4 ads | W. Hall |
| Near Starr Road | " | 6/17/71 | 2 Ads | D. Paulson |
| Near Newman Lk junction | " | 5/2/72 | 1 Ad | W. Hall |
| Between Starr and Idaho Roads | " | 5/13/72 | 2 Ads | J. Acton |
| Hauser junction | " | 5/20/73 | 4 Ad | W. Hall |
| Newman Lk junction | " | 5/15/74 | 2 Ads | W. Hall/J. Acton |
| Idaho Road | " | 6/22/74 | 2 Ads | J. Acton |
| Idaho Road | " | 5/16/75 | 3 Ads | J. Acton |
| Osoyoos Lk | Okanogan | Spring 76 | 1-2 Ads | B. Overly |

| | | | | |
|---|---|---|---|---|
| Between Starr & Idaho Rds. | Spokane | 5/10/76 | 5 Ads | W. Hall |
| East Spokane Valley | " | 6/12/76 | 3 Ads. nest,4 eggs | Spokane Audubon |
| Idaho Road | " | 5/8/77 | 4 Ads | J. Acton |
| Ocean Shores | Grays Harbor | 9/2/77 | 1 Ad | A. Richards |
| Near LaCrosse | Whitman | 9/77 | noted | Prairie Owl 6(3):6 |
| N. end Chase road | Spokane | 5/14/78 | 2 Ads | W. Hall/T. Rogers |
| Starr Road | " | 5/19/78 | 2 Ads | J. Acton |
| Wynoochee Game Range | Grays Harbor | 5/29/78 | 1 Ad | J. & N. Smith |
| No. of Umatilla | Benton | 6/78 | 1 Ad | T. Fleming |
| Wenas Lk | Yakima | 8/22/78 | 3 Ads | Z. Butler/E. Cragg |
| East of Chase Road | Spokane | 5/26/79 | 3 Ads | D. Pineo |
| Starr/Idaho Road area | " | 6/26/79 | 4 Ads | T. Rogers |
| East Spokane Valley | " | 5/18/80 | 9 Ads | J. Acton |
| Near Lacrosse | Whitman | 9/--/80 | 1 Ad | L. & F. Jones |
| Ellensburg | Kittitas | 7/30/80 | 1 Ad | Paulson (1993) |
| East Spokane Valley | Spokane | 5/27/81 | 2 Ads | J. Adkins |
| " | " | 5/16/82 | 8 Ads | B. Whelton, J. Acton |
| West end Sprague Lk | Adams | 4/29/83 | 1 Ad | G. & W. Hoge |
| East Spokane Valley | Spokane | 5/22/83 | 4 Ads | J. Acton |
| " | " | 7/3/84 | 3 Ads | R. Knapp, T. Rogers |
| " | " | 5/14/85 | 3 Ads | T. Rogers & J. Hickman |
| " | " | 6/27/86 | 8 Ads | I. Ulsh |
| " | " | 7/16/87 | 3 (2 Ads, 1 juv?) | Thieman (1987) |
| " | " | 5/20/88 | 7 Ads | King et al. (1991) |
| Chief Joseph Wildl. Area | Asotin | 9/29/88 | 2 Ads, 3 juv, 1 unk | M. Beckstead |
| East Spokane Valley | Spokane | 5/9/89 | 3 Ads | E. Chapin |
| " | " | --/--/90 | 3 Ads | J. Adkins |
| " | " | 5/13/91 | 3 Ads | D. Demers |
| " | " | 5/4/92 | 2 Ads | D. Demers |
| " | " | 9/24/93 | 2 Ads | D. Demers |

[a] Upland sandpipers were usually assumed to be adults (Ad or Ads) unless mention was made of the possibility of a juvenile. This was the case on July 16, 1987 when the appearance of one sandpiper matched that of a 30-35 day old juvenile and the adults circled the observer and made a chatter call.

Appendix C. Responses to written comments received during Recovery Plan review, organized by plan section and indicating number of commenters to include each remark.

| Section | Comment<br>*Response* | No. |
|---|---|---|
| Distribution | County occurrence information in the Distribution and Population Status and Trend sections do not agree with Table 1.<br>*The county lists in the Distribution and Population Status and Trend sections were complete lists. Table 1 reported only sightings made since 1979 because Lloyd (1979) contained a fairly comprehensive list.* | 1 |
| | The recovery plan omits a sighting of 5 upland sandpipers in Asotin County during September 1988.<br>*This sighting has been added to Appendix B.* | 1 |
| | Descriptions of breeding distribution refer to northeast Oregon, thereby ignoring the breeding locality at Sycan Marsh in southcentral Oregon.<br>*Breeding distribution in Oregon has been changed to "eastern Oregon."* | 1 |
| | Upland sandpipers do not live in Washington. They live from eastern Idaho east to the coast.<br>*Upland sandpiper occurrence in Washington has been well documented.* | 1 |
| Habitat Requirements | The adjective "lush" in reference to mountain meadows in Oregon where upland sandpipers are found could be replaced with "seasonally wet" to be more accurate.<br>*This suggested change was made to the nesting habitat section.* | 1 |
| | Upland sandpipers at Sycan Marsh nest in bluegrass meadows, a situation slightly different from that described for northeastern Oregon.<br>*A brief description of the habitat at Sycan Marsh has been added to the nesting habitat section.* | 1 |
| Population Status and Trend | Modify the statement concerning sustained use of the east Spokane Valley being a result of sandpipers returning to their natal area. There is no biological evidence to support this statement.<br>*This statement was moved to the conclusion section of the report and changed to indicate that adult philopatry might explain the sustained use of the east Spokane Valley by a small number of birds.* | 1 |
| Factors Affecting Continued Existence | Is rainfall really greater in the southern Great Basin than it is in the north?<br>*This information was taken from Bowen and Kruse's 1993 paper titled "Effects of grazing on nesting upland sandpipers in North Dakota."* | 1 |

| | | |
|---|---|---|
| Recovery Objectives | The recovery goals would be more realistic if we strive for more breeding sites with fewer birds at each site. This approach would better reflect natural conditions in the Pacific Northwest.<br>*To better reflect natural conditions (as best we know them) the recovery objectives were changed. There is now a greater emphasis on securing habitat areas and a lowered expectation for upland sandpiper numbers.* | 1 |
| | Population size required for reclassification and delisting seem low. They do not adequately provide security from stochastic events.<br>*Precariously small numbers which are subject to local extirpation appear to be the norm for upland sandpipers in the Pacific Northwest. The recovery objectives, which focus on providing a number of secure habitats, are expected to provide greater security from stochastic events than has been afforded by habitat conditions at any time in recorded history. The long-term viability of the upland sandpiper in Washington is, as it probably always has been, dependent upon populations outside of the state's boundaries.* | 1 |
| | The information presented suggests that upland sandpipers in Washington are a peripheral segment of a larger metapopulation. Typically, such populations are at the edge of the species' ecological tolerances and subject to local extinctions and recolonizations. Washington's population goals may be unrealistically high.<br>*Recovery objectives have been revised to emphasize maintenance of habitat with lowered expectations for numbers of sandpipers. The current population objectives are believed to be more consistent with historic conditions.* | 1 |
| General | Do everything possible to save the species.<br>*The plan outlines everything thought to be necessary.* | 1 |
| | Implement this plan in an expeditious manner.<br>*The Implementation Schedule calls for initiation of many aspects of the plan during 1995.* | 2 |
| | Considerable personnel time will be necessary to implement the plan.<br>*Estimates of personnel costs were included in the Implementation Schedule.* | 1 |
| | To ensure continued existence of upland sandpipers in Washington, habitat preservation and expansion are most important.<br>*Monitoring upland sandpipers and managing habitat are the number 1 and number 2 priority tasks identified in the plan, reflecting their importance to recovery.* | 1 |
| Manage Habitat | The association of upland sandpipers with wet meadows may be overstated in the Recovery Plan. Many of the habitat features that explain upland sandpiper occurrence near wet meadows could be found or created under other conditions.<br>*General statements about Pacific Northwest upland sandpiper habitat have been changed to avoid giving the impression that wet meadows are a requirement of upland sandpipers.* | 1 |
| | What spatial design is planned for habitat enhancement and long-term management? Optimal management should target multiple neighboring small sites rather than large blocks of continuous habitat.<br>*The recovery objectives call for management of nesting and foraging habitat areas at least 100 ha (247 ac) in size. Each of these habitat areas can be comprised of* | 1 |

| | | |
|---|---|---|
| | *neighboring small habitat areas. Within the recovery objectives there is considerable flexibility to choose locations and geographic arrangement. The recovery plan defers most decisions on site-specific design to the implementation phase.* | |
| | Encourage looking beyond existing public lands to acquire or otherwise gain management authority over private lands to benefit upland sandpipers and other species associated with grassland habitat.<br>*Public lands represent a logical starting place to look for resources that can be used to benefit upland sandpipers. Substantial efficiencies will be achieved if public lands prove suitable for the task. However, the plan recognizes the potential that private lands may contribute significantly to upland sandpiper recovery.* | 2 |
| | Statements about the short and long term importance of the east Spokane Valley upland sandpiper site were appropriate.<br>*These statements remain.* | 1 |
| | Spokane County does not seem interested in protecting upland sandpipers. Does the state have the power to insist on cooperation or does the state lack the will to do so?<br>*During the 1980's, when many developments in upland sandpiper habitat were being debated, the state had no authority to require protection of upland sandpiper habitat. The Growth Management Act of 1992 provides a mandate to local governments to identify critical habitats for threatened and endangered species and develop ordinances which protect them. This process is ongoing and the state is interactive in the process. However, the most recently occupied east Spokane Valley upland sandpiper area is so degraded that tighter regulation of land uses may not provide substantial benefits to upland sandpipers.* | 1 |
| | Consider the Chief Joseph Wildlife Area for its potential as a future breeding habitat for upland sandpipers. Many upland sandpiper habitat features are present.<br>*Chief Joseph Wildlife Area has been identified as an area with potential for management as upland sandpiper habitat.* | 1 |
| | The recovery plan calls for securing the means to manage habitat and considering acquisition but does not state that securing habitat will be done. It needs to be done.<br>*The plan's recovery objectives require that habitat is secure before downlisting or delisting. Private lands important to upland sandpiper recovery will be evaluated and, if warranted, acquisition will be pursued.* | 1 |
| | Spring grazing should be discouraged at sites to be managed to promote upland sandpiper breeding.<br>*The section on land uses suitable for creating and sustaining upland sandpiper habitat now includes a statement indicating that spring grazing is detrimental to nesting habitat.* | 1 |
| Consider Direct Population Management | Translocations and captive breeding could compromise the natural population's unique genetic composition and interfere with future opportunities to study the natural dynamics of these peripheral populations. | 1 |

| | | |
|---|---|---|
| | *The section of the plan which describes the need to consider captive breeding and translocation activites is the last strategy presented and is, hopefully, a last resort prescription. However, such techniques may be necessary to establish breeding birds in restored habitat. To the best of our ability, genetics will be considered in the development and application of these techniques.* | |
| Develop Information and Education | Encourage development of an information brochure and close cooperation with landowners to encourage land management which benefits upland sandpipers. *These activities are included in the plan.* | 1 |
| | Publicize the plight of these birds. Wildlife problems need more publicity. *This is included in the plan.* | 1 |

---

Written comments were received from:

Mark Stern, Zoologist
Oregon Natural Heritage Program
1205 NW 25th Ave
Portland OR 97210

Holly Akenson
62361 Leffel Rd
La Grande OR 97850

Bonnie S. Bowen
USDI, National Biological Survey
Northern Prairie Wildlife Research Center
Route 1, Box 96C
Jamestown ND 58401-9736

David B. Marshall, Consulting Wildlife Biologist
4265 Chesapeake Ave
Portland OR 97201

Maureen Beckstead, Wildlife Area Program Manager
Washington Department of Wildlife
600 Capitol Way N
Olympia WA 98501-1091

Dianne W. Holmes
1534 Colonial Ct SW
Olympia WA 98512

Bud A. Doolittle
4482 Airway Dr NE
Moses Lake WA 98837

Kerry Masters
23602 E 1st Ave
Liberty Lake WA 99019-9606

Howard and Thais Armstrong
836 Wallen Rd
Bow WA 98232

Howard L. Armstrong, Vice President
Skagit Audubon Society
PO Box 1101
Mt Vernon WA 98273