



WORKSHOP

Report on the Western Burrowing Owl (*Speotyto cunicularia*) Conservation Workshop

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This workshop was convened to review the current status of the Western Burrowing Owl (*Speotyto cunicularia hypugaea*) in North America, to discuss means by which we can improve our knowledge of this owl, and to initiate conservation action to benefit the species. About 70 people attended the workshop on the evening of 7 February 1997. Several speakers presented information on Burrowing Owls. Some of these speakers summarized information presented in earlier talks, as part of the Second International Owl Symposium, and others presented additional information relevant to the topic. Many people from the audience also contributed ideas and information. In this summary, we endeavor to present the main ideas that arose from the workshop and try to acknowledge each of the contributors. However, we apologize to those who may have been overlooked. We thank all those who participated in the workshop and who have since sent comments. We added new information about the trilateral agreement and decisions that became available in the spring of 1997 after the workshop.

The Burrowing Owl is an Endangered species in Canada and is declining rapidly; it is a Candidate 2 species and is declining in most of the western USA; and it has no designation in Mexico. In Canada, determination of the status of wildlife is made by the Committee On the Status of Endangered Wildlife In Canada (COSEWIC). In 1978, COSEWIC designated the Burrowing Owl as a Threatened Species, but in 1995 the designation was changed to Endangered (Wellicome and Haug 1995). In the USA, in 1994, the Burrowing Owl was listed as a Candidate 2 species. No public review of the

species' status has been made since that time. In Mexico, the Burrowing Owl does not appear on any formal wildlife list.

Recovery efforts in Canada are coordinated through the Canadian Burrowing Owl Recovery Team, which has met each year since 1990. This team is comprised of researchers and representatives of wildlife agencies and land-management agencies or industry associations. Its activities are guided by the Burrowing Owl Recovery Plan (Hjertaas et al. 1995).

STATUS IN CANADA

The first three speakers presented current information on the Burrowing Owl in Canada. Troy Wellicome, Department of Biological Sciences, University of Alberta, described the status of the Burrowing Owl in Canada on behalf of the Canadian Burrowing Owl Recovery Team, and outlined research he is conducting, in cooperation with Saskatchewan Fisheries and Wildlife, on "The effects of increased reproductive output on Burrowing Owl population change." The Burrowing Owl is declining across its Canadian range. There is only one pair left in Manitoba, down from 76 pairs 15 years ago, and only one pair known in B.C. despite a decade of reintroduction efforts after its extirpation there in 1979. Virtually all of the Canadian owl population is, therefore, now confined to southern Alberta and southern Saskatchewan, where there are less than 1,000 pairs remaining—down from more than 3,000 pairs in 1978. Declines in these two provinces average over 10 percent per year.

One of the factors implicated in the Burrowing Owl's decline is its seemingly low fledging rate. In Canada, this owl has an average clutch size of nine eggs but fledges only 3-5 young. Using food supplementation and predator exclusion, Troy and his colleagues have successfully increased fledging output to high levels for 3 consecutive years. However, thus far, it is not clear whether increases in reproductive output can slow the owl decline in Canada.

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Kort Clayton, Department of Biology, University of Saskatchewan, discussed mortality of adults and young during the post-fledging period. Mortality of birds in the post-fledging period has been documented for 2 consecutive years near Hanna, Alberta, using radio-telemetry. Mortality of adult males was quite high between the time of fledging and fall dispersal (late-July to late-August), totaling 45 per cent in 1995 and 35 percent in 1996; whereas, mortality was 0 percent for females during this same period in both years. Fledgling mortality was also quite high during this time: 65 per cent in 1995 and 40 percent in 1996. There was, however, no mortality of adult birds or fledglings between fall dispersal and migration (late-August to mid-October) in either year. The majority of all post-fledging mortalities in Hanna resulted from avian predation.

Robert Warnock, Department of Biology, University of Regina, used data from the Operation Burrowing Owl program to test the hypothesized effects of landscape fragmentation on Saskatchewan's owl population. He found that the size of pasture fragments and the continuity of grassland habitat affects the distribution of breeding sites. The persistence of owl 'colonies' increased with higher habitat continuity, less patch edge, and more neighbor 'colonies'. Local extirpation from patches has increased and occupancy rates have decreased in Saskatchewan since 1987. He concluded that the remaining Burrowing Owl habitat in Saskatchewan appeared inadequate for population persistence.

STATUS IN THE UNITED STATES

In the western United States, the Burrowing Owl appears to be declining in most states where data exist, with the exceptions of parts of Colorado and Idaho. Several speakers discussed the status of the Burrowing Owl in the U.S. Bob Murphy, U.S. Fish and Wildlife Service, Des Lacs NWR Complex, North Dakota, stated that surveys in North Dakota in 1996 failed to find any Burrowing Owls where they had been found as recently as 1995 and where at least 90 historical breeding records existed. Dennis Flath, Montana Fish, Wildlife, and Parks, stated that relatively little information was available on the status of Burrowing Owls in Montana. However, he has access to early records of prairie dog colonies that occurred along the railroad right-of-way from 1907 to

1914. Based on those surveys, he has estimated that prairie dog colonies covered 1.5 million acres in eastern Montana. In the late 1980's, estimates of colonies in this area were as low as 180,000 acres, a decline of 88 percent. Recent publications suggest that prairie dogs now occupy only 2 percent of their former range in all of North America.

Dr. L. Trulio and Janis Buchanan described the desperate situation of Burrowing Owls in central California, where an informal working group has been working on Burrowing Owl conservation for several years. Despite their efforts, and with intensive land development in a region where land is worth over a million dollars per acre, the outlook for the Burrowing Owl is bleak. In several areas it is expected to be extirpated within 10 years.

Steve Sheffield, Clemson University, cautioned the audience that the Breeding Bird Survey and Christmas Bird Count data do not reflect a decline in western North America. However, small sample sizes and biases associated with these surveys make them of limited value for detecting declines for raptor populations. Geoff Holroyd pointed out that most of the winter records can be accounted for by Lubbock, Texas, where Burrowing Owls occur within a small, captive prairie dog colony.

MIGRATION AND WINTER

What do we know about Burrowing Owls on migration and during winter? Helen Trefry, Canadian Wildlife Service, Edmonton, Alberta, recently summarized all of the information on banding and band returns for Burrowing Owls in North America, and found that, of the thousands of birds banded in Canada, only a handful have been recovered in the U.S. and none in Mexico. None of the band returns for Canadian owls in the U.S. occurred during the winter months of November through March, but returns have been reported from as far south as south-central Texas and the Gulf Coast in both spring and fall. Migration from Canada occurs at night and begins in September, continuing through early October, and owls return between late March and mid-May. Habitats used during migration in the U.S. are unknown, but we assume the owls use burrows for cover in the daytime. Only 2 percent of prairie dog colonies remain, likely reducing the critical habitat available to owls on migration.

Geoff Holroyd summarized his surveys in northern Mexico, which were conducted in cooperation with PROF AUNA (Dr. Julio Carrera and his staff in Saltillo, Coahuila) since 1992; and in Texas in cooperation with Dr. Felipe Chauvez (Texas A&I University, Kingsville; and Kevin Mote, Texas Parks and Wildlife, Canyon) in January 1997. His field work indicates that the coastal lowlands of Texas and northeastern Mexico have a winter population of Burrowing Owls that are not present in summer. Also, Burrowing Owls appear more abundant in prairie dog colonies in northern Mexico in winter than in summer. Much of coastal Texas is cultivated and many Mexican black-tailed prairie dog colonies are vacant or cultivated.

A North American Burrowing Owl Conservation Program is needed to determine the status and conservation needs of the species in all three countries, and is a necessary component of Canadian recovery efforts. The Burrowing Owl's status in the USA and Mexico is unknown and needs to be determined. The extent of owl movement between the three countries and the association between breeding and wintering ranges need to be documented. Improved communication through formal and informal linkages will greatly facilitate status assessment and the performance of necessary conservation activities.

SOME RELATED MONITORING AND CONSERVATION INITIATIVES

Canadian Conservation Action

Operation Burrowing Owl (OBO) was created in 1987 in Saskatchewan and in 1989 in Alberta. OBO offers landowners the opportunity to aid in Burrowing Owl conservation by signing a voluntary agreement not to cultivate nesting habitat or use harmful pesticides in the area for 5 years. The agreements are renewed every fifth year. Over 700 landowners have signed agreements with Operation Burrowing Owl in Alberta and Saskatchewan to protect over 37,000 hectares (93,000 acres) of grassland habitat. Fragmentation due to previous cultivation of grassland may cause problems for the viability of breeding populations, but current loss of breeding habitat is less of a concern in Canada, since the number of owls is declining much faster than that the loss of native habitat. Many Operation Burrowing Owl landowners report that owls are not returning to previously-occupied and presently-protected habitat.

Trilateral Committee for Wildlife and Ecosystem Conservation and Management

This committee was established through an international memorandum of understanding, signed by the directors of the federal wildlife agencies of Mexico, Canada, and the United States on 9 April 1996. The purpose of the agreement is "to facilitate and enhance coordination, cooperation, and the development of partnerships among the wildlife agencies of the three countries, and with other associated and interested entities, regarding projects and programs for the conservation and management of wildlife, plants, biological diversity, and ecosystems of mutual interest.... Such projects and programs will include scientific research, law enforcement, sustainable use and any other aspect related to this purpose." At the second meeting of the committee in February, 1997 in Phoenix, Arizona, the committee established a working group to develop a continental approach to the conservation of Burrowing Owls. This working group will ensure international cooperation and communication to recover the Burrowing Owl.

Raptor Monitoring Strategy

Those who attended this workshop were told about another workshop, held in Boise, Idaho in August 1996, to develop a North American raptor monitoring strategy. Details of the workshop can be found in the paper on 'owl monitoring' by Holroyd and Takats in the present proceedings. The workshop report is available on the Internet at: <http://www.im.nbs.gov/raptor/raptor.html> or from Robert Lehman, U.S. Geological Service, Biological Resources Division, Snake River Field Station, 970 Lusk Street, Boise, ID 83706, USA. This monitoring strategy is being developed by a volunteer task-force that communicates through a list serve. Interested parties can join the list serve by sending an e-mail message to listproc@rana.im.nbs.gov In the body of the message (not in the subject line) put 'subscribe raptor end <your name>'.

RECOMMENDED ACTIONS

The following actions were discussed at the Burrowing Owl workshop and were generally endorsed. However, there was no vote or procedure for 'democratic' input for these recommendations. Nevertheless, based on subsequent discussions, we are confident there



is strong and broad support for these actions. We thank all participants for contributing to the success of this workshop.

1. An international working group be established to share information about the status of, and research on, the Burrowing Owl in North America, to define the conservation actions that could reverse its decline, and to coordinate cooperative implementation of recovery efforts.
2. An informal communication network be established. The network would likely consist of e-mail communication through an Internet 'list serve', a newsletter and a mailing list of interested researchers, conservationists, and others. Attendees signed-up for this network at the workshop.
3. A North American-wide survey of Burrowing Owls be conducted in 1998.
4. Where data exists on the distribution and abundance of Burrowing Owls, those areas be revisited in 1997 and/or 1998 to further document the trends in distribution and abundance of the owls.
5. A survey protocol be developed and distributed for use in the 1998 survey.
6. A major workshop on Burrowing Owl status, biology and conservation be held in Utah in autumn 1998, in conjunction with the annual meeting of the Raptor Research Foundation.
7. "Operation Burrowing Owl" land stewardship programs be implemented in

the U.S. and Mexico to promote land-owner stewardship and conservation of this species and its habitats. OBO will also provide valuable data on owl population trends, as it has done thus far in Canada.

8. The Burrowing Owl working group cooperate with any organization established to conserve prairie dogs. In particular, immediate action is needed to protect the few remaining colonies of Mexican black-tailed prairie dogs in Mexico.

ACKNOWLEDGMENT

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LITERATURE CITED

- Hjertaas, D.; Brechtel, S.; De Smet, K.; Dyer, O.; Haug, E.; Holroyd, G.L.; James, P.; Schmutz, J. 1995. National recovery plan for the Burrowing Owl. Recovery of Nationally Endangered Wildlife (RENEW) Rep. 13. Ottawa, ON: Canadian Wildlife Service. 33 p.
- Wellicome, T.I.; Haug, E.A. 1995. Second update of status report on the Burrowing Owl (*Speotyto cunicularia*) in Canada. Ottawa, ON: COSEWIC, Environment Canada. 32 p.