

THE JOURNAL OF RAPTOR RESEARCH

A QUARTERLY PUBLICATION OF THE RAPTOR RESEARCH FOUNDATION, INC.

VOL. 35

DECEMBER 2001

NO. 4

J. Raptor Res. 35(4):269–273

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THE SECOND INTERNATIONAL BURROWING OWL SYMPOSIUM: BACKGROUND AND CONTEXT

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This issue of *The Journal of Raptor Research* showcases the proceedings of the Second International Burrowing Owl Symposium, held from 29–30 September 1998 in Ogden, Utah. The symposium was well attended, and the enthusiasm and insights of over 110 participants, mainly from Canada, Mexico, and the United States, brought a higher profile to growing concerns for Burrowing Owl (*Athene cunicularia*) populations and their conservation. Our current knowledge of this species was expanded by presentations on the owls' distribution, the extent of their declines, and new discoveries about the owl's genetics, behavior, and population biology within many states and provinces. We learned about the ecology of owls from as far north as Saskatchewan and as far south as Colombia. Despite the variety of biological disciplines represented, and the diversity of grassland systems with which participants were familiar, they all shared a common interest and concern for the species.

This symposium was a natural follow-up to the First International Burrowing Owl Symposium, organized by Jeff Lincer (Lincer and Steenhof 1997). The first symposium was held in November 1992 in Seattle, Washington, immediately before the Raptor Research Foundation's annual meeting. That symposium originated because of concern about the status of the Burrowing Owl, particularly in California and Canada. Its focus was the biology and management needs of the Burrowing Owl.

After the first symposium, several important

events shaped the objectives of the second symposium: the Burrowing Owl's status changed in Canada, an international working session was held, two new international agreements were signed, and the North American Raptor Monitoring Strategy was initiated.

In 1995, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated the Burrowing Owl as an endangered species. Wellicome and Haug (1995) recommended this designation in light of further retraction of the species' range in Canada (Fig. 1) and the persistence and pervasiveness of the population decline. At annual meetings of the Canadian Burrowing Owl Recovery Team, members shared reports from landowners and researchers that indicated overall population declines in excess of 20% per yr in the three prairie provinces. Biologists documented the disappearance of the owl from former strongholds in Saskatchewan and Alberta (Wedgwood 1978, Haug 1985, Wellicome et al. 1997, Shyry et al. 2001) and its extirpation from the provinces of British Columbia (Leupin and Low 2001) and Manitoba (De Smet 1997, K. De Smet pers. comm.).

In Winnipeg in February 1997, Holroyd and Wellicome (1997) organized a workshop on Burrowing Owl conservation at the Second International Symposium on the Biology and Conservation of Owls of the Northern Hemisphere. At this workshop 85 participants heard the latest reports from various researchers. For example, Bob Murphy described preliminary surveys for Burrowing

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Figure 1. Current and historical ranges of the western Burrowing Owl (*Athene cunicularia hypugaea*) in North America. Current distribution modified from Haug et al. 1993, from North American Breeding Bird Survey distribution map for the Burrowing Owl (Sauer et al. 2001), from individual papers in the Proceedings of the Second International Burrowing Owl Symposium (*J. Raptor Res.* 35[4]), and from personal communications with numerous local experts within each province and state. Historical range (pre-1970s) taken from Zarn (1974), from Wedgwood (1978), and from personal communications with local experts. In states that lacked detailed distributional data, owls were presumed to be absent from areas of forest or rugged mountains. The historical range is unknown for Mexico.

Owls in North Dakota that showed the absence of the owl in areas that it was formerly common, and Dennis Flath estimated that black-tailed prairie dogs (*Cynomys ludovicianus*) had declined by 88% in Montana, presumably accompanied by declines in Burrowing Owl populations. Unfortunately, these alarming trends were apparently not limited to the north, as Lynne Trulio (1997) and Janis Buchanan (1997) reported severe declines of Burrowing Owls in parts of California (see also DeSante et al. 1997). One main recommendation from the Winnipeg workshop was that the status of the Burrowing Owl in western North America be

determined through a range-wide, systematic survey. Another recommendation from the workshop was that a second international Burrowing Owl symposium be held.

On 9 April 1996, the 'Canada/Mexico/United States Trilateral Committee for Wildlife and Ecosystem Conservation and Management' was established through an international memorandum of understanding signed by the directors of the federal wildlife agencies of the three countries. The purpose of the agreement was "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 programmes for the conservation and management of wildlife, plants, biological diversity and ecosystems of mutual interest Such projects and programs include scientific research, law enforcement, sustainable use and any other aspect related to this purpose." At the second meeting of the Trilateral Committee, in February 1997 at Phoenix, Arizona, a working group was established to develop a continental approach to the conservation of Burrowing Owls. One representative from each of the three countries comprised the working group, which shared preliminary correspondence about international cooperation and communication to recover the Burrowing Owl. The Second International Burrowing Owl Symposium was organized by Geoff Holroyd as an activity of this group. Effective international cooperation toward species recovery requires a solid foundation, so one objective of the symposium was to develop a conservation plan for the species in North America.

Another international agreement that could aid Burrowing Owl conservation is the Framework for Cooperation in the Protection and Recovery of Wild Species at Risk, which was signed by the U.S. Fish & Wildlife Service and the Canadian Wildlife Service in April 1997. At the second meeting of the two parties, in June 1998 in Ottawa, the Burrowing Owl was identified as a candidate species for binational action. One of the action items was to "develop work plans for cooperative recovery action for individual species," again highlighting the need for a conservation/recovery action plan for the Burrowing Owl in North America.

Through the course of these meetings and from other communications, it soon became clear that, because the Burrowing Owl was not listed under

the U.S. Endangered Species Act, the ability of U.S. federal agencies to expend resources on research and conservation for this species was limited. Thus, another objective of the second symposium was to provide a preliminary indication of the status of the Burrowing Owl in as many jurisdictions as possible in North America.

In August 1996, a workshop was held in Boise, Idaho to discuss a North American raptor monitoring strategy. The goal of this strategy is to develop monitoring approaches for all of the continent's raptors, including owls (Holroyd and Takats 1997). This goal further reinforced the need for discussions about monitoring techniques for the Burrowing Owl.

Executives of the Raptor Research Foundation, Inc. and the local conference organizing committee headed by Carl Marti, graciously agreed to hold the symposium immediately before the 1998 annual meeting. Our immediate managers, Gerald McKeating and Loney Dickson, approved Canadian Wildlife Service (Environment Canada) funds to host the meeting, and World Wildlife Fund Canada provided travel assistance for several speakers.

The overall goal of the Ogden symposium was to determine the status and conservation needs of the Burrowing Owl, its prey, and its habitat. The objectives of the symposium were to:

- (1) Determine the status of the Burrowing Owl,
- (2) Identify conservation issues that affect Burrowing Owls,
- (3) Identify known or likely solutions to these problems,
- (4) Identify expertise in fields relevant to Burrowing Owls,
- (5) Identify research needs for Burrowing Owl conservation, and
- (6) Recommend Burrowing Owl monitoring strategies.

At the symposium, over 110 researchers from Canada, Mexico, the United States, and South America listened to 34 presentations on the Burrowing Owl and its habitats. After the symposium, some authors either did not pursue publication or published their data elsewhere; however, these proceedings include many of the papers presented at the 1998 symposium, along with some additional solicited papers. Articles cover a wide range of topics within the broad categories of biology, status and trends, and conservation and management of Burrowing Owls. These studies span all four prov-

inces and 13 of the 19 U.S. states within the owls' range (Fig. 1), and one paper (Holroyd et al. 2001) includes information on Burrowing Owls in Mexico. In the final plenary working session, there was consensus that Burrowing Owls were declining across much of their range in western North America, and participants drafted an outline for the Burrowing Owl Conservation Action Plan (Holroyd et al. 2001), which later was presented to the Trilateral Committee in 2000.

No date or place has been set for a third Burrowing Owl Symposium, but we suggest that one be held at the 2002 Raptor Research Foundation annual meeting in New Orleans. In the meantime, a new list serve for Burrowing Owl researchers and managers has been created by John Sidle. To subscribe to the Burrowing Owl list serve, type "subscribe burrowingowl *your name*" in the body of an e-mail message, leaving the subject line blank, and send it to "listserv@unl.edu."

As we look to the future, there is much work to be done in Mexico, in both summer and winter. In the western U.S., promising research is already underway in California (D. Rosenberg pers. comm.), Oregon, and Washington (C. Conway pers. comm.), where ground squirrels (Sciurids), rather than prairie dogs (*Cynomys* spp.), are the main burrow providers. We are not aware of any research on Burrowing Owls in Nevada or Utah. Also, Texas is home to a large number of owls in all seasons (James and Espie 1997), and this seems like a promising location for future studies. Perhaps through further investigation where Burrowing Owls are thought to be faring well (for example, in parts of Idaho [J.R. Belthoff and K. Steenhof pers. comm.] or Colorado [Lutz and Plumpton 1997]) we might uncover the keys to healthy populations. We are encouraged by progress in the development of a standardized survey protocol for Burrowing Owls (C. Conway unpubl. data; J. Duxbury unpubl. data), but much fieldwork and coordination remains before a wide-scale survey can be realized.

Although reasons for declines might be intricate and varied, one clear theme that emerged from this symposium was the importance of fossorial mammals to the Burrowing Owl's ecology. It follows then that conservation of prairie dogs, ground squirrels, badgers (*Taxidea taxus*), kangaroo rats (*Dipodomys* spp.), and other burrow-providers is of utmost importance. The 1998 petition to list the black-tailed prairie dog as a Threatened species in

the U.S., and ensuing management efforts on that species' behalf, are timely for Burrowing Owls and other wildlife in the Great Plains. Internationally-coordinated, cooperative efforts on Burrowing Owls, in concert with more general conservation programs, holds the greatest promise for long-term protection of the many species that rely on grassland ecosystems on this continent.

ACKNOWLEDGMENTS

The symposium was funded by Environment Canada and World Wildlife Fund Canada (WWFC). WWFC paid for transportation of participants from British Columbia, Mexico, and Colombia, and provided funds through the Beaverhill Bird Observatory to edit and publish the proceedings. Environment Canada funded travel from Alberta, paid for the conference center, and contributed to the publishing costs. Janis Buchanan, Jason Duxbury, Jeff Lincer, Carl Marti, Bob Murphy, Steve Sheffield, John Siddle, Helen Trefry, and Lynne Trulio served on the program committee. We thank Darcey Shyry, Robert Sissons, and Helen Trefry, who served as a local committee for the symposium, and Marco Restani, Ken De Smet, Scott Hutchings, and Brenda Johnson, who completed more than their fair share of manuscript reviews. We appreciate the help of many people, especially Dave Stepnisky, in the creation of Fig. 1. Special thanks to Carl Marti who arranged for the conference center facilities in Ogden, Utah.

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