LA-UR- 08-5821

Approved for public release; distribution is unlimited.

Title:	WINTER FEEDING HABITS OF THE MOUNTAIN BLUEBIRD (SIALIA CURRUCOIDES) IN NORTHERN NEW MEXICO
Author(s):	Kassidy Burnett Jeanne Fair
Intended for:	New Mexico Ornithological Society

Los Alamos
NATIONAL LABORATORY
EST. 1943

Form 836 (7/06)

WINTER FEEDING HABITS OF THE MOUNTAIN BLUEBIRD (*SIALIA CURRUCOIDES*) IN NORTHERN NEW MEXICO

Kassidy S. Burnett and Jeanne M. Fair*

* Correspondence addressed:

Los Alamos National Laboratory, Atmospheric, Climate & Environmental Dynamics, MS J495, Los Alamos, NM 87545, jmfair@lanl.gov

The Mountain Bluebird (*Sialia currucoides*) is found in western North America and is known for the blue color that completely covers the male (Martin et al. 1951). The Mountain Bluebird habitat spans through the Rocky Mountains as well as the Sierra Cascade regions, but winters in the milder parts of this geographic area which includes New Mexico (Martin, et al. 1951). However, Mountain Bluebirds in New Mexico are often permanent residents as well (unpublished data).

During the summer breeding months, the Mountain Bluebird consumes 92% of its diet in insects as well as other animal matter (Bent, 1942). However, little is known about the diet of Mountain Bluebirds in the winter. From December 2004 through February 2005, approximately 40 Mountain Bluebirds flocked together in Nambé, New Mexico (35°55'00", 105°59'20", altitude 1867 meters). The arroyo habitat includes One-seed Juniper (*Juniperus monosperma*), Silver Sagebrush (*Artemisia cana*), and sparse Narrowleaf Cottonwood (*Populus angustifolia*). Our focus was to analyze the winter feeding habits of the Mountain Bluebird in the northern area of New Mexico.

We collected a total of 115.97 grams Mountain Bluebirds droppings from the pond in the study area. We sorted through the droppings to distinguish between different food types consumed, and found that the winter diet consisted primarily of fruit seeds. This is supported by Martin et al. (1951) who states that fruits constitute most of the small proportion of plant material in the diet of the Mountain Bluebird. Power and Lombardo (1996) who determined from stomach contents obtained over an entire period of a year the Mountain Bluebird diet consist of grapes, currants, elderberries, sumac seeds, mistletoe seeds, and hackberry seeds.

The main fruit found was that of the One-Seed Juniper which weighed 105.7 grams (91.2 % of material collected). The One-Seed Juniper is one of five of juniper species found in Northern New Mexico (Foxx and Hoard 1995). The One-Seed Juniper can be found in the southwestern United States in Texas, New Mexico, and Arizona. It has a wide variety of elevation tolerances ranging from 3,000 feet to the ponderosa pine forests at around 7,500 feet (Johnsen 1962). It can be characterized by the purple berries that shrivel when dried and is very important for providing food during the winter months for birds that rely on fruits (Johnsen 1962, Martin 1951, Poddar and Lederer 1982). It is also noted that One-Seed Juniper berries are very palatable to birds because of the sweet taste, and can provide a lot of energy due to its high calories (Salomonson 1978).

The remaining berries that were found were from Russian Olive trees (*Elaeagnus angustifolia)* and weighed 9.6 (8.3% of collected material). Russian-Olive trees originated from Europe and Asia but have been found in North America prior to 1900 (Borell 1976). At one point the Russian-Olive tree was being planted for land management purposes to help in soil conservation, improvement of habitat, windbreaks, and also it was planted in residential areas (Borrel 1951, Knopf and Olson 1984). Russian-Olives are found in large numbers in Albuquerque as well as in the Rio Grande Valley area. The fruit grows in the early fall and stays on the tree through the winter. Thus, the berries are available to wildlife when other food is in short supply in the winter months (Borrell 1951).

Although Russian-olive may provide a plentiful source of edible fruits, it has been found that bird species richness is higher in riparian areas dominated by native vegetation and not the exotic Russian-olive (Knopf and Olson 1984). Despite this fact,

Borrel (1951) author of "Russian-Olive as a Wildlife Food" observed Mountain Bluebirds feeding on Russian-olive trees. Also, Russian-olive was used by over one-third of the bird species in the Gila Valley area of New Mexico as a nesting site—perhaps due to increased protection as a nesting site due to spines and a thicket-forming growth pattern (Stoleson and Finch 2001). However, despite these possible benefits, it has been estimated that 31% of native bird species that depend on native trees for nesting, and insects, would be harmed by colonization by Russian-olive (Shafroth et al. 1995). An increase fruits available for passerines in the winter in New Mexico may allow for resident populations to remain if temperatures in the Southwest increase in the future.

ACKNOWLEDGMENTS

We thank L.K. Marsh for assistance in collecting bluebird droppings and E. Powell for editing and review comments. We are also grateful to L. Maestas, C. Hathcock, and D. Keller for assistance in the field. Laboratory analysis was completed at Los Alamos National Laboratory in conjunction with the Avian Nestbox Montioring Project with funding by the Environmental Restoration Program.

LITERATURE CITED

BENT, A. C. 1942. Life Histories of North American flycatchers, larks, swallows, and their allies. Bull. U.S. Natl. Mus. No. 179.

BORELL, A. E. 1951. Russian-Olive as a Wildlife Food. Journal of Wildlife Management 15: 109-110.

BORELL, A.E. 1976. Russian-olive for wildlife and other conservation uses. U.S. Dep. Agric. Lefl. 517. 8pp.

FOXX, T.S., AND D., HOARD. 1995. Flowering Plants of the Southwestern Woodlands. Otowi Crossing Press, Los Alamos, New Mexico.

JOHNSEN, T. N. 1962. One-Seed Juniper Invasion of Northern Arizona Grasslands. Ecological Monographs 32: 187-207.

KNOPF, F. L., AND T. E. OLSON. 1984. Naturalization of Russian-Olive: Implications to Rocky Mountain Wildlife. Wildlife Society Bulletin 12: 289-298.

MARTIN, A. C., H. S., ZIM, AND A. L., NELSON. 1951. American Wildlife and Plants: A Guide to Wildlife Food Habits. Dover Publications Inc., New York, New York.

PODDAR, S. AND R.J., LEDERER. 1982. Juniper berries as an exclusive winter forage for Townsend's solitaires. Am. Mid. Nat. 108:34-39.

POWER, H. W. AND M.P. LOMBARDO. 1996. Mountain Bluebird (Sialia currocoides), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology.

SALOMONSON, M. G. 1978. Adaptations for Animal Dispersal of One-Seed Juniper Seeds. Oecologia 32: 333-339.

SHAFROTH, P. B., A.T. GREGOR, AND M. L. SCOTT. 1994. Germination and Establishment of the Native Plains Cottonwood (*Populus deltoids* Marshall subsp. Monilifera) and the Exotic Russian-olive (*Elaeagnus angustifolia* L.).

STOLESON, S.H. AND D. M. FINCH. 2001. Breeding Bird Use of and Nesting Success in Exotic Russian Olive in New Mexico. The Wilson Bulletin 113: 452-455.