

## USE OF A CAR ALARM SEQUENCE IN THE NORTHERN MOCKINGBIRD REPERTOIRE

HOWARD O. CLARK, JR.

California State University, Stanislaus  
Endangered Species Recovery Program  
1900 North Gateway Boulevard, Suite 101, Fresno, California 93727

The use of anthropogenic-sourced sounds by northern mockingbirds, *Mimus polyglottos*, is not fully understood. Mockingbirds are noted for adding alien sounds to their repertoire, especially songs and calls of other birds (Howard 1974). Examples of anthropogenic-sourced sounds include creaking wheelbarrows, vacuum cleaners, and human whistles (Laskey 1944). Mockingbirds are also known to imitate mechanical sounds, frogs, and insects (Gill 1995).

Northern mockingbirds have extensive repertoires (Breitwisch and Whitesides 1987) and can learn over 400 song bouts in a single year (Derrickson 1987a). However, Derrickson (1987a) found that up to 57% of a mockingbird's repertoire occurred only once in a sampling period of singing behavior. In another study, Derrickson (1988) reported that 25% of the song types only occurred once among singing males over a two-year period. The mockingbirds sang these rare songs during courtship behaviors. Mockingbirds increase their repertoire with age, but some songs are used temporarily, while others are retained indefinitely (Laskey 1944).

There are two hypotheses that may explain the evolution behind repertoire size, song diversity, and interspecific mimicry: intrasexual selection (male-male competition for mates), and intersexual selection (females selecting males). Howard (1974) suggested that sexual selection influenced the size of mockingbird repertoires. Males with larger repertoires are better able to attract mates and exclude competitors from their territories with the use of interspecific mimicry (intrasexual selection, Howard 1974). Logan and Hyatt (1991) noted that in the spring unmated males sang more frequently than mated males, which correlated with mate attraction. Spring song may also be a territorial signal (Logan and Fulk 1984). Work by Logan (1983) and Breitwisch and Whitesides (1987) support the intersexual hypothesis for song function in mockingbirds, i.e., that songs vocalized during the breeding season function largely in male-female interactions. No consensus has been reached regarding the function and evolution of the extensive repertoires in mockingbirds (Derrickson 1988), however, the two hypotheses may not be mutually exclusive.

On the evening of 3 May 1999, a male northern mockingbird vocalized a mimicked car alarm sequence at Wasco, Kern County, California, USA (longitude W 119.3, latitude N 35.6). During the 10-minute period, the bird vocalized the car alarm sequence twice, but the sequence was not heard again. The sequence resembled a Viper® car alarm (Directed Electronics, Inc., Vista, California, USA). The vocalization consisted of sounds resembling a series of bells, buzzes, whistles, beeps, and sirens.

The mockingbird I observed was vocalizing during the waning gibbous moon (91% of the visible disk was illuminated, the full moon occurred on 30 April 1999. U.S. Naval

Observatory, 1999<sup>1</sup>). Singing at night is typical of unmated male mockingbirds and occurs regularly during full-moon periods (Derrickson 1988, Gill 1995).

Mimicry of anthropogenic-sourced sounds seems to play a small role in the functioning repertoire of northern mockingbirds. Mimicked calls of other birds are more common and are predominant in mockingbird vocal displays (Howard 1974). These commonly occurring song types fall within two dichotomies: flight versus non-flight and mate associating versus not associating (Derrickson 1987b). Anthropogenic-sourced sounds fall within the group reported in the literature as those expressed only once and then dropped. Therefore, it appears that anthropogenic-sourced calls are not successful in securing mates or territory. Derrickson (1987b) reported that rare songs occur prior to the arrival of a female in the territory (prefemale stage), courtship stage, and night singing. Anthropogenic-sourced calls may be experimental efforts by unmated individuals to secure mates, but the unsuccessful rate of accomplishing this goal results in dropping the calls after a few bouts. The use of the car alarm sequence may be an example of this behavior.

#### ACKNOWLEDGEMENTS

I thank D. Newman, J. Clark, and two anonymous referees for reviewing the manuscript. G. Warrick confirmed the bird sighting and witnessed the call. The U. S. Bureau of Reclamation provided funding for this short communication.

#### LITERATURE CITED

- Breitwisch, R. and G.H. Whitesides. 1987. Directionality of singing and non-singing behaviour of mated and unmated Northern Mockingbirds, *Mimus polyglottos*. *Animal Behaviour* 35:331-339.
- Derrickson, K.C. 1987a. Yearly and situational changes in the estimate of repertoire size in Northern Mockingbirds (*Mimus polyglottos*). *The Auk* 104:198-207.
- Derrickson, K.C. 1987b. Behavioral correlates of song types of the Northern Mockingbird (*Mimus polyglottos*). *Ethology* 74:21-32.
- Derrickson, K.C. 1988. Variation in repertoire presentation in Northern Mockingbirds. *The Condor* 90:592-606.
- Gill, F.B. 1995. *Ornithology*, second edition. W. H. Freeman and Co., New York, USA.
- Howard, R.D. 1974. The influence of sexual selection and interspecific competition on mockingbird song (*Mimus polyglottos*). *Evolution* 28:428-438.
- Laskey, A.R. 1944. A mockingbird acquires his song repertory. *The Auk* 61:211-219.
- Logan, C.A. 1983. Reproductively dependent song cyclicity in mated male mockingbirds (*Mimus polyglottos*). *The Auk* 100:404-413.
- Logan, C.A. and K.R. Fulk. 1984. Differential responding to spring and fall song in mockingbirds (*Mimus polyglottos*). *Journal of Comparative Psychology* 98:3-9.
- Logan, C.A. and L.E. Hyatt. 1991. Mate attraction by autumnal song in the Northern Mockingbird (*Mimus polyglottos*). *The Auk* 108:429-432.

Received: January 29, 2001

Accepted: March 22, 2002

<sup>1</sup> U.S. Naval Observatory. 1999. Astronomical Applications Department, Sun and Moon Data for One Day, Washington, D.C., USA.

