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CHAPTER 2

EFFECTS OF NOISE POLLUTION ON BIRDS: A BRIEF REVIEW OF OUR KNOWLEDGE

Catherine P. Ortega

Ecosphere Environmental Services, 776 E. Second Avenue, Durango, Colorado 81301, USA

Abstract.—Many avian species have long been exposed to loud natural sounds such as streams, waterfalls, and wind. However, anthropogenic noise pollution is a relatively recent phenomenon that birds now have to cope with throughout much of the world. Early investigations on bird responses to noise tended to focus on physical damage to ears, stress responses, flight or flushing responses, changes in foraging, and other behavioral reactions. These studies were often conducted under laboratory conditions because determining effects of noise on free-ranging birds is particularly difficult, in that we rarely have the opportunity to isolate noise as a single testable variable. By coupling introduced noise on the landscape (e.g., from gas well compressors) with ecologically similar controls, investigators have recently found additional responses, including avoidance of noisy areas, changes in reproductive success, and changes in vocal communication. Numerous investigators have compared urban birds with their rural counterparts in quieter surroundings and found that at least some birds can compensate for the masking effect of noise through shifts in vocal amplitude, song and call frequency, and song component redundancies, as well as temporal shifts to avoid noisy rush-hour traffic. Sounds have presumably always been part of the environment, but noise pollution has escalated over the past century, especially the past few decades, disturbing the integrity of natural ecosystems. This review provides general background information, updates on the most current literature, and suggestions for future research that will enhance our comprehensive knowledge and ability to mitigate negative effects of noise.

Key words: birds, communication, hearing, noise pollution, soundscape.

Efectos de la Polución Sonora en Aves: una Breve Revisión de Nuestro Conocimiento

Resumen.—Muchas especies de aves han sido expuestas prolongadamente a sonidos naturales fuertes, como arroyos, cascadas y viento. Sin embargo, la polución sonora antropogénica es un fenómeno relativamente reciente con el que las aves tienen que lidiar ahora en casi todo el mundo. Las primeras investigaciones sobre la respuesta de las aves al ruido tendían a enfocarse en el daño físico a los oídos, las repuestas de estrés, las respuestas de vuelo o huída, los cambios en el forrajeo y otras reacciones de comportamiento. Estos estudios fueron frecuentemente conducidos bajo condiciones de laboratorio porque determinar los efectos del ruido sobre aves libres es particularmente difícil, ya que rara vez se tiene la oportunidad de aislar el ruido como única variable que se pone a prueba. Al acoplar el ruido introducido en el paisaje, como el de los compresores de pozos de gas, con controles ecológicamente similares, los investigadores recientemente han encontrado respuestas adicionales, incluyendo la evasión de áreas ruidosas, cambios en el éxito reproductivo y cambios en la comunicación vocal. Numerosos investigadores han comparado

E-mail: ortega_cp@yahoo.com

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