Chapter 9

Observed and Potential Effects of Artificial Night Lighting on Anuran Amphibians

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Anuran amphibians (frogs and toads) are experiencing global declines in population size and diversity (Alford and Richards 1999, Stuart et al. 2004). Researchers studying declining amphibians have identified several anthropogenic factors that are likely to contribute to such declines, including habitat destruction and disruption; acid precipitation; ultraviolet radiation damage caused by ozone depletion; environmental toxicants such as pesticides, herbicides, and industrial waste; changes in predator, prey, parasite, or competitor abundance; and the introduction of nonindigenous predators, competitors, or parasites (Alford and Richards 1999, Stuart et al. 2004). As more data become available, more factors probably will be identified that are contributing to amphibian declines.

Light pollution, the introduction of artificial lighting into areas where it changes the illumination or spectral composition of natural lighting, may be one such factor. In recent years, the amount of artificial light entering amphibian habitats has increased radically in conjunction with increases in human population growth, industrialization, and urban and suburban sprawl (Cinzano et al. 2001). Almost the entire eastern United

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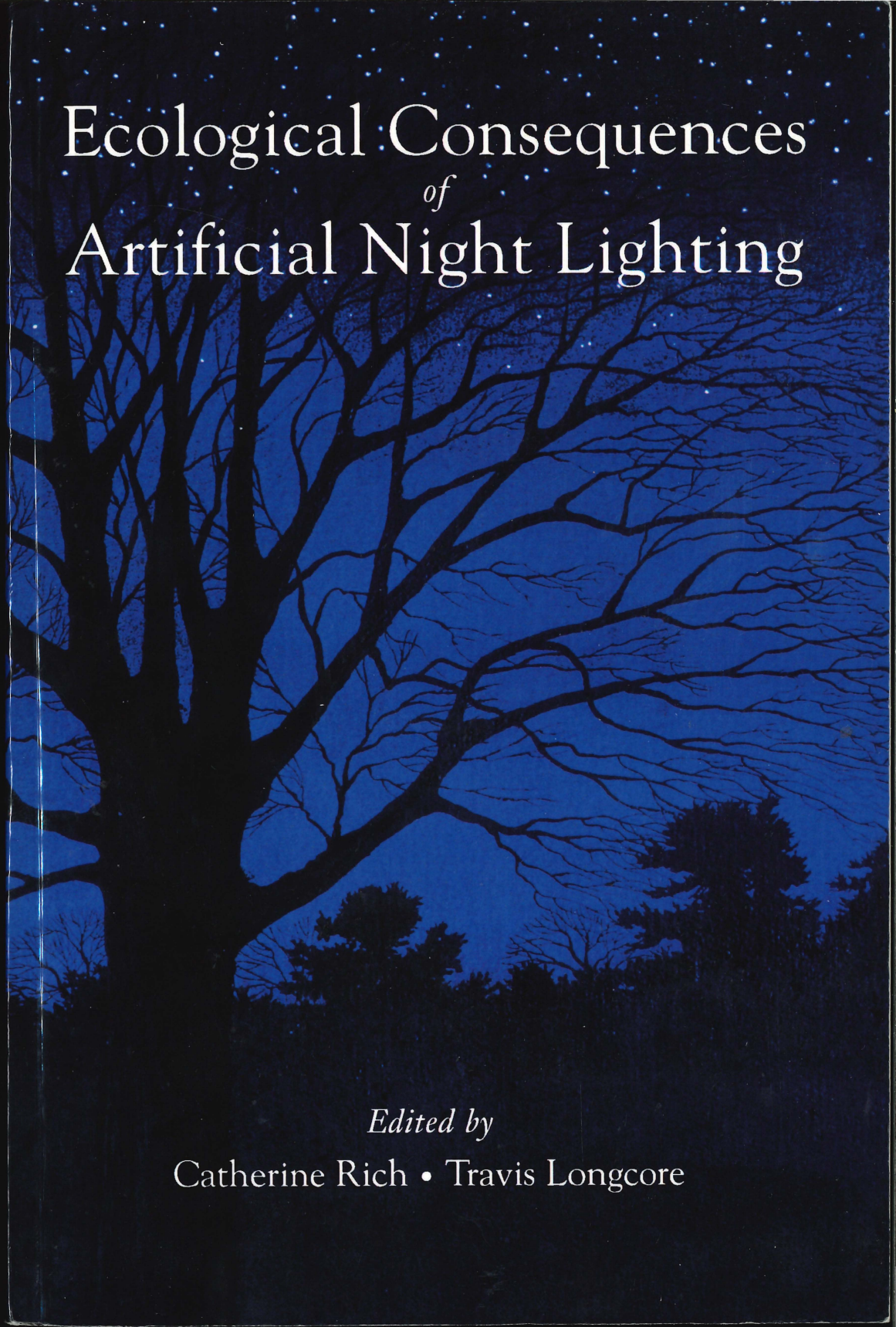

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