



# THE WILDLIFE SOCIETY

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## Final Position Statement

### Acidic Deposition

Pollutants from industrialized regions can adversely affect aquatic and terrestrial wildlife species by acidifying and contaminating sensitive areas with heavy metals. The deposition (precipitation) of acidifying substances and nitrogen from the air to soil and surface water can result in changes and damage to vegetation and soil. In addition, atmospheric deposition of nitrogen oxides onto the landscape contributes to eutrophication of water bodies. Actions to reduce sulfur dioxide (SO<sub>2</sub>) and nitrogen oxide (NO<sub>x</sub>) emissions that cause acidic depositions were detailed in the “Agreement between the Government of the United States of America and the Government of Canada on Air Quality” (hereafter The Agreement) signed in March 1991. Canada has implemented provisions to reduce SO<sub>2</sub> and NO<sub>x</sub> through the Eastern Acid Rain Control Program (EARCP). The United States (U.S.) also has implemented measures of the Clean Air Act to control emissions.

Studies of acidic depositions were initiated in North America as early as 1923, and by the late 1970s, long-term governmental programs were in place to monitor and analyze precipitation in the U.S. and Canada. Further coordination of U.S. and Canadian research was effected in 1980 through a 10-year program under the National Acid Precipitation Assessment Plan (NAPAP). The final NAPAP report became available in 1990. Specific studies of effects of acid rain on wildlife have revealed that most effects are subtle and manifested either through changes in the structure of food webs or increased contamination of wildlife foods by toxic metals. Adverse effects on birds that eat fish are especially evident. Voluminous field and experimental data show negative effects of decreased water pH on bird food sources. For other vertebrate species, effects are specific (e.g., lower hatchability of amphibian eggs, reduced abundance of earthworms as prey of birds, mammals, and herpetofauna) and regional (i.e., geographic areas of low buffering capacity receiving atmospheric SO<sub>2</sub> and NO<sub>x</sub> inputs). Indirect effects of acid deposition include mobilization and toxification of aluminum, the most common mineral in the earth’s crust. The acidification process is somewhat reversible because reducing the rate of hydrogen ion production allows for an increase in consumption (buffering) of hydrogen ions in the environment. Reducing emissions of SO<sub>2</sub> and NO<sub>x</sub> will reduce hydrogen ion production. To protect the health of humans and wildlife it is prudent to implement actions to reduce airborne contaminants.

The policy of The Wildlife Society in regard to effects of acidic depositions on wildlife and their habitats is to:

1. Recognize that the issue of acidic depositions is complex and has biological, economic, social, political, and international implications across North America.
2. Encourage the U.S. and Canada to fully implement provisions of The Agreement and other actions that substantially reduce emissions that cause acidic depositions.

3. Encourage the U.S. and Canadian governments to fairly but strictly uphold provisions of the 1990 Clean Air Act and the EARCP, respectively, to reduce emissions of SO<sub>2</sub> and NO<sub>x</sub>.
4. Encourage programs by federal, state, and provincial agencies and non-governmental organizations that educate the domestic and corporate public about causes and consequences, both direct and indirect, of acidic deposition.
5. Encourage environmental education programs that inform the domestic and corporate public that ecosystems can be restored by reducing inflow of pollutants to sensitive areas, including by means of remedial regulatory action.
6. Encourage coordinated efforts between the United States, Canada, and Mexico to monitor airborne pollutants and their sources, assess effects on representative ecosystems, and evaluate responses of the environment to remedial actions.

Approved by Council September 2009. Expires September 2014.