1046-92-821 **Lynelle M Weldon** (`weldon@andrews.edu`), Department of Mathematics, Andrews University, Berrien Springs, MI 49104, **Shandelle M Henson**, Department of Mathematics, Andrews University, Berrien Springs, MI 49104, **James L Hayward**, Biology Department, Andrews University, Berrien Springs, MI 49104, **Libby C Megna*** (`megna@andrews.edu`), Biology Department, Andrews University, Berrien Springs, MI 49104, and **Joseph G Galusha**, Department of Biological Sciences, Walla Walla University, Walla Walla, WA 99324. *Effect of the Abiotic Environment on Preening in Glaucous-winged Gulls (Larus glaucescens), Part I.*

Preening is an important avian behavior that has been associated with maintenance of flight feathers, thermoregulation, parasite removal, stress reduction, and social interaction. We used logistic regression with information-theoretic techniques to study the incidence of preening in glaucous-winged gulls (Larus glaucescens) as a function of six environmental correlates and the stage of breeding season. We used the Akaike Information Criterion adjusted for overdispersion (QAIC) to select the best model from a suite of alternatives. From model averaged parameter estimates we estimated odds ratios with 95% confidence intervals (incorporating model uncertainty) for the effects of humidity, temperature, solar elevation, wind speed, tide height, and barometric pressure on the occurrence of preening. We summed Akaike weights to rank the factors in relative importance. The most important environmental correlates were temperature and humidity during the Nest-building/Egg-laying stage of the breeding season; solar elevation and tide height during the Egg-laying/Incubation stage; and barometric pressure, humidity, wind speed, and tide height during the Incubation/Chick-rearing stage. Overall, the most important factor in this suite of models was the stage of breeding season. (Received September 11, 2008)