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## Hayward and Henson secure NSF grant for \$350,000

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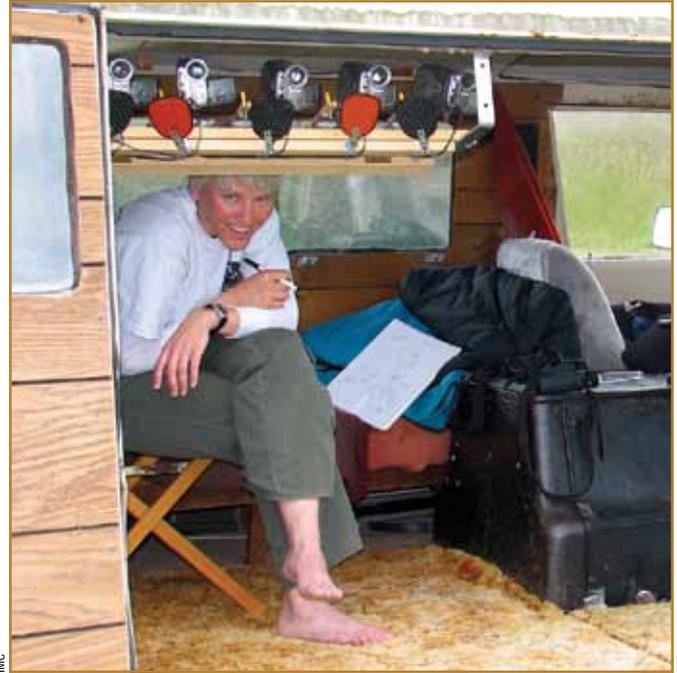
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Jim Hayward sports clothing and head gear donned for protection against the colony's persistent "white rain" and kamikaze gulls.

Shandelle Henson pauses from collecting data in the converted van the team calls its "mobile blind."

## Hayward and Henson secure NSF grant for \$350,000

Shandelle Henson, professor of mathematics, and James Hayward, research professor of biology, are the principal investigators on a three-year National Science Foundation (NSF) grant for \$350,000. The funds will be used for the salaries, equipment, supplies and travel necessary to study ovulation synchrony in colonial seabirds, a discovery made during 2006 and 2007. In addition to faculty involvement, six to eight undergraduate and graduate students per year will participate in the project.

Since 2002, Henson and Hayward have been the lead researchers for the Seabird Ecology Team, an interdisciplinary group of biologists and mathematicians from Andrews University, the University of Arizona and Walla Walla University. The team spends their summers at Protection Island National Wildlife Refuge in the Strait of Juan de Fuca, Wash., observing the

behavior of the Glaucous-winged Gulls that nest there in a large colony.

In a pilot study, Henson and Hayward discovered that female gulls in dense parts of the colony lay their eggs synchronously on an every-other-day schedule. Before this discovery, "ovulation synchrony," recognized as menstrual synchrony in women who live or work together, was known to occur only in humans and rats. The occurrence of this phenomenon in both birds and mammals suggests the existence of a fundamental physiological process common to diverse organisms.

Following the discovery of ovulation synchrony, Henson and Hayward posed a mathematical model of egg-laying based on the hypothesis that every-other-day surges of ovulation hormones in individual gulls synchronize through social stimulation. Model predictions have been consistent with observations. The new grant will allow further model testing and an attempt to identify the synchronizing signal in gulls.

It is hoped this research will increase our understanding of the basic

biology of hormone systems as they relate to reproductive behavior. In addition to gaining a better knowledge of bird hormones and reproduction, practical applications of this research in the future may address things like the effects of hormone cycles on group behavior patterns in humans and human reproductive medicine.

This is the third NSF grant secured by Henson and Hayward. The first, received in 2003, totaled \$304,000. The researchers shared their second grant of \$300,000 with Walla Walla University. Along with additional assistance from Andrews University Faculty Grants, this funding has allowed them to mentor more than 30 research students, publish 15 technical papers—most with student coauthors, present talks at numerous research conferences and teach three interdisciplinary classes for undergraduate students.

Keri Suarez, media relations specialist, with additional reporting by Samantha Snively, student news writer, Office of Integrated Marketing & Communication