

## Past Research Projects

These are some independent research projects done by past animal behavior students during the Spring quarter—some current students have requested this information, but use it for inspiration only if you want. For each project, the broad topic comes first: then the hypothesis, hypotheses, or broadly defined questions. In some cases, the brief description might not make much sense if you don't know the system, behaviors, or organisms being studied.



Flocking behavior in shorebirds: Flocking behavior observed in Western sandpipers and dunlins during Spring migration is hypothesized to be 1) a warning to potential predators that the birds in the flock are too fit to catch or 2) intra-specific food competition.

Aggressive behavior between glaucous-winged gulls and Northern crows: Provisioning will alter the number, intensity, and/or direction of aggressive interactions between these two species.

Communal roosting behavior in crows: Diurnal group size of crows will be inversely correlated with vocalization rate, and positively correlated with the presence of a sentinel.

Advantages of group foraging in Northwestern crows: presence of heterospecifics will enhance feeding rate. Subordinate hypotheses: food particle size and abundance will both be correlated with feeding success and, thus, mitigate the effects of heterospecifics.

Response to predator risk in Steller's jays: these birds are at higher risk in their non-dominant microhabitat, so will show higher rates of vigilance when on the ground, as measured by proximity to both cover and to conspecifics, than when in trees.

Emergence time in little brown bats: Time of maximum emergence of the colony of little brown bats at the TESC farmhouse will be correlated with 1) lunar phase or 2) illumination level (a complex variable that includes time since sunset and cloud cover).

Alert behavior in Western Canada Geese: The "Alert Posture Role" (a specifically defined behavior) will differ in duration and transfer between (monogamous pairs of) breeders vs. non-breeders. Additionally, brood size is hypothesized to correlate with transfers and durations of the APR.

Parental care and offspring development in Canada geese: The amount of time that goslings spend feeding will decrease as they age. And, gosling behavior will become more highly correlated with parental behavior as goslings age.

Foraging behavior in Canada geese: Individual foraging rates will first increase as group size increases, but then decrease as within-group aggression increases with group size.

Raptor rivalry: Bald eagle kleptoparasitism will negatively effect osprey feeding success.

Interactions between bald eagles and blue herons: Individuals in the blue heron colony at Nisqually, which has been repeatedly abandoned in recent years, will show an increase in alert and defensive behaviors when bald eagles are present.

Foraging rates in robins: If robins find prey using visual cues, their foraging rates will increase as grass length increases to make up for missed foraging attempts.

Foraging in red-breasted sapsuckers: Woodpeckers will select trees into which to drill sap wells, which have thin bark and high levels of visible sap, in order to reduce energy expenditures and optimize sap intake.

Effect of morphology on behavior in dabbling vs. diving ducks: Diving ducks will have a higher preening rate, and spend more time in the water, than dabbling ducks because of their tendency to dive, and associated morphological adaptations.

Habitat selection in mallards: Wild ducks will use several artificial ponds preferentially based on sex, water level, water quality, and brood size.

Interactions between bald eagles and harbor seals: During the seal birthing season at Toleak point (on the Western edge of the Olympic peninsula), bald eagles will include seal pups in their diet. Furthermore, the diets of juveniles will differ from that of adults.

Effect of tide level on Pacific harbor seals: Seal abundance and activity, as measured with counts of abundance, surfacing frequency, swimming activity while surfaced, and amount of time spent at the surface, will each be correlated with tide level, and diel light penetration.

Seasonal changes in rough-skinned newts: Do newts change into their terrestrial form while still in the aquatic phase? Do newt tails thin at the same time that skin roughens? Does the terrestrial change occur after completion of the mating season?

Newt time budgets: How do newts partition their days? Does it differ for juveniles? What is the maximum amount of time newts will swim? Does feeding behavior initiate social interactions?

Territoriality in newts: Using site tenacity as a primary indicator of territoriality, rough-skinned newts were studied to assess whether 1) they can differentiate between two sites and, if so 2) they can navigate within a pond, back to a particular site.

Territoriality and neighbor recognition in Western thatch ants: Ants will react more aggressively to conspecifics from neighboring colonies than they will to those from distant colonies.

Colony size in thatch ants: Colony size will be correlated with 1) distance that foragers go from a colony while foraging ( $H_{00}$ : not true); 2) maximum prey size; 3) average prey size; 4) diversity of prey.

Trail length in thatch ants: Following from the extensive literature on optimal foraging theory, this student hypothesized that trail length in foraging ants would be correlated with

ant density, foraging frequency, trail width, and trail persistence.

Predation risk and small mammals: Trap rates of North American deer mice will decrease when predators (experimentally placed cat fur) are in evidence.

Dominance and food availability in grey wolves: As dominance in wolf packs can take the form of privilege, in which the dominant wolf claims ownership of a contested object (especially food), dominance behavior will decrease as food becomes more readily available (this study followed both wild packs in Yellowstone, and a captive population at NorthWest Trek).

Home range size in side-blotched lizards: There will be an inverse correlation between habitat quality (as measured by plant diversity and cover) and home range size (this study took place near Vantage).

### **Projects on captive animals**

Bobcats in captivity: Several behaviors (marking, pacing, sleeping, playing, vocalizing, swimming, hunting, climbing) were quantified in four captive bobcats over 35 hours of observation. Hypotheses included that individuals would anticipate daily changes in who was in the enclosure; and that stereotypical behaviors would be limited in space and time.

Female dominance and rate of supplant in captive lowland gorillas: Female position within the social group is based on age, the older females are dominant to the younger females.

Dominance in captive horses: What is the dominance hierarchy of seven captive horses sharing a pasture? Was the smaller hierarchy of four original horses altered by the addition of new horses?

Loyalty in chickens: If female chickens (at the TESC organic farm) show loyalty to one male, then 1) more females will show loyalty to the dominant male than to the subordinate male, 2) all females will show loyalty to the dominant male, 3) more females will show loyalty to the subordinate than to the dominant male, or 4) equal numbers of females will show loyalty to the dominant and to the subordinate male.

Burrow use in captive pygmy rabbits: Adults will spend significantly more time above ground (out of their burrows) than juveniles will.

Scent-marking in golden lion tamarins: 1) scent-marking will be preferentially associated with foraging areas; 2) scent-marking will occur in response to visits from the keepers; and 3) as a display of dominance, scent-marking will be more common among the dominant animals than the subordinates.