

Stony Ford Theses & Publications

This is a list of theses and publications, marked as follows:

- ★ done (at least partially) at Stony Ford, OR
- * providing a perspective on work at Stony Ford, OR
- on a topic that could profitably be pursued at Stony Ford.

Unless otherwise noted, the theses were done by undergraduates in the Department of Biology or the Department of Ecology and Evolutionary Biology at Princeton University. For PhD theses, publications are also cited. Not all faculty and post-doctoral publications have been compiled. Missing folks known to have worked at Stony Ford include: V. G. Dethier, J. Hoogland, H. J. Brockmann, D. Mitchell, S. Livdahl, and possibly C. Martinez del Rio.

Please send any additions or corrections to hshorn@princeton.edu.

For convenience the theses are listed alphabetically by author's last name under these topical headings:

- 1. Landscape** (including geology and spatial patterns of habitats.)
- 2. Trees** (including shrubs. See also **Landscape** above.)
- 3. Herbs**
- 4. Left-over Low Life** (wet & slimy at some stage of life; including slime molds, fungi, lichens, fish, and salamanders.)
- 5. Invertebrates** (other than insects.)
- 6. Insects**
- 7. Birds**
- 8. Mammals**

1. Landscape (including geology and spatial patterns of habitats.)

- ★ Atkin, D., 1980 (PhD), The age structures and origins of trees in a New Jersey floodplain forest. Profs. H. S. Horn and J. W. Terborgh.
- Curtin, M. E., 1978, Tree succession redux. Prof. H. S. Horn.
- Denecke, C., 2000, On the possibility of Janzen–Connell mechanisms in the Institute Woods, Princeton. Profs. S. A. Levin and P. R. Grant.
- * Floyd, T., 1990, The edge effect on forest breeding bird community structure: a New Jersey case study. Prof. H. S. Horn.
- * Gomes-Casseres, L. , 1999, From unbroken forests to suburban sprawl: the influence of soil on natural and human history in Princeton and vicinity. Prof. H. S. Horn.
- * Greiling, D. A., 1992, Development, remnant forest “islands,” and conservation. Prof. H. S. Horn.
- ★ Hoffman, L. L., 1996, The role of initial floristic composition and differential growth rates in old-field succession. Prof. H. S. Horn.

- * Kineke, G. C., (Geology), 1983, The flood plain of Stony Brook, New Jersey. Prof. S. S. Judson.
- * Lu, J., 1999, The Witherspoon Woods: A forest history. Prof. H. S. Horn.
- * Mount, R. H., 1994, Avian conservation: relationship of territory size and minimum area requirements. Prof. H. S. Horn.
- Newman, P. G., 1987, The Sourland Mountain Preserve: a look at secondary succession on the New Jersey Piedmont.
- * Pierson, C., (Geology), 1986, A map series and study of historical changes in land use in central New Jersey. Profs. S. S. Judson, and W. E. Bonini.
- Siegman, N. T., 1987, The Sourland Mountain: studies for the establishment of a natural preserve of New Jersey. Prof. H. S. Horn.
- Stover, M. E., 1989, Mountain Lakes Nature Preserve: a guide to the James C. Sayen Trail. Prof. H. S. Horn.
- * Thate, K., 1998, The history of forests in Princeton, New Jersey: forest clearance, regeneration, and fragmentation. Prof. H. S. Horn.
- Torres, C. D., 1991, The Princeton Boathouse Woods: a successional study of the natural Princeton. Prof. H. S. Horn.
- * Van Leer, T. W., (Geology), 1986, A historical land use study of Princeton, New Jersey. Prof. W. E. Bonini.
- * West, N., (Geology), 1979, Layman's guide to the geology of Princeton, New Jersey. Prof. S. S. Judson.

2. Trees (including shrubs. See also **Landscape** above.)

- ★ Arastu, R., 1998, Leonardo was wise: Trees conserve cross-sectional area despite vessel structure. Prof. H. S. Horn.
- Dahl, R., 1978, The development and ecology of tree bark. Profs. H. S. Horn and J. W. Terborgh.
- ★ Fairman, S., 1972, Longevity and mortality in trees. Profs. J. A. Endler and H. S. Horn.
- ★ Furie, G., 1997, An investigation of the mechanisms controlling old-field succession. Prof. H. S. Horn.
- Gall, R., 1994, Comparing seed dispersal dynamics in a forest "island" with those in a forest interior plot. Prof. H. S. Horn.
- Gorchov, D. L., 1980, Invasion of Red Chokeberry into abandoned Blueberry fields. Profs. J. W. Terborgh and H. S. Horn.
- ★ Green, D. S., 1980 (PhD), The aerodynamics and dispersal of Ash, Tuliptree, and Maple samaras. Prof. H. S. Horn.
- ★ Green, D. S., 1980, The terminal velocity and dispersal of spinning samaras. *Am. J. Bot.* 67: 1218–1224.
- * Kaplan, S. R., 2001, The effect of terminal velocity on the potential for long-distance dispersal of wind-dispersed tree seeds. Prof. H. S. Horn.
- Karpoff, H., 1987, Flight and dispersal in wind-dispersed seeds of trees. Prof. H. S. Horn.
- ★ McArthur, K. M., 1998, An investigation into the allometry of Red Cedar. Prof. H. S. Horn.
- Palmer, J., 1983, A height *versus* diameter study of *Liriodendron tulipifera*. Prof. H. S. Horn. N.B. This species is unaccountably absent at Stony Ford, but the approach could be used with other species.
- Smith, U. R., 1987, Tree branching patterns and successional strategies. Prof. H. S. Horn.

3. Herbs

- ★ Bass, M. S., 1993, Wildflowers and fungi: the effect of vesicular–arbuscular mycorrhizal fungi on three colonizing annuals. Prof. D. A. Stratton.
- ★ Bennett, K. E., 1992, Resource based competition theory: a test of the R* hypothesis of plant competition. Prof. D. A. Stratton.
- ★ Bennington, C. C., and D. A. Stratton, 1998, Field tests of density– and frequency–dependent selection in *Erigeron annuus* (Compositae). *Am. J. Bot.* 85: 540–545.
- ★ Butler, M. P., 1999, Compensation in Queen Anne’s Lace (*Daucus carota*): responses to simulated herbivory and pollen limitation. Profs. H. S. Horn and S. W. Pacala.
- Heston, K. P., 1979, Studies of the growth form and reproductive effort in *Asclepias*, *Solidago*, and *Aster*. Prof. J. W. Terborgh.
- Lorenz, R., 1968, The effects of shading on ground cover plant growth in a mixed coniferous–deciduous area. Profs. H. S. Horn and R. H. Mac Arthur.
- ★ Stratton, D. A., 1994, Genotype–by–environment interactions for fitness in *Erigeron annuus* show fine–scale selective heterogeneity. *Evolution* 48: 1607–1618.
- ★ Stratton, D. A., 1995, Spatial scale of variation in fitness of *Erigeron annuus*. *Amer. Nat.* 146: 608–624.
- ★ Stratton, D. A., and C. C. Bennington, 1998, Fine–grained spatial and temporal variation in selection does not maintain genetic variation in *Erigeron annuus*. *Evolution* 52: 678–691.
- ★ Waller, D. M., 1978 (PhD), Costs, benefits, and environmental determinants of outcrossing in the woodland annual, *Impatiens capensis* Meerb. (Balsaminaceae). Profs. H. S. Horn and J. W. Terborgh.
- ★ Waller, D. M., 1979, Relative costs of self–fertilized and cross–fertilized seeds in *Impatiens capensis* (Balsaminaceae). *Amer. J. Bot.* 66: 313–320.
- ★ Waller, D. M., 1980, Environmental determinants of outcrossing in *Impatiens capensis* (Balsaminaceae). *Evolution* 34: 747–761.
- ★ Waller, D. M., 1982, Jewelweed’s sexual skills. *Natur. Hist.* 91: 32–?.

4. Left-over Low Life (wet or slimy at some stage of life; including slime molds, fungi, lichens, fish, and salamanders.)

- Horn, E. G., 1969 (PhD), Some aspects of food competition among the cellular slime molds. Prof. J. T. Bonner.
- Horn, E. G., 1971, Food competition among cellular slime molds (Acrasieae). *Ecology* 52: 475–484.
- Lai, T. T., 1999, Lichen growth patterning. Prof. S. A. Levin.
- Panek, J., 1984, A study of lichens as indicators of air pollution in the New Jersey Pine Barrens. Profs. R. Stallard (Geology) and J. W. Terborgh.
- * Smith, S., 1933, Observations on the life history and breeding habits of the salamanders found in the vicinity of Princeton. Prof. G. Fankhauser.
N.B. A follow–up on this would be very interesting, since salamanders are notoriously sensitive to polluting conditions of air and water.
- ★ Tien, J. H., 1998, A field study of the proximate mechanisms of fish schooling. Prof. S. A. Levin.
- * Walker, G., 1996, Introduction to the mushrooms of the Princeton University Campus. Prof. H. S. Horn.

5. Invertebrates (other than insects.)

- Detlefsen, S., 1992. Toxicity of pesticides to earthworms (Oligochaeta: Lumbricidae) in different soils. Prof. A. P. Dobson.
- ★ Fernandes, D. M., 1988 (PhD), The adaptive significance of protandry in the terrestrial slug, *Arion subfuscatus*. Prof. D. I. Rubenstein.
- ★ Hack, M. A., D. J. Thompson, and D. M. Fernandes, 1997, Fighting in males of the autumn spider, *Metellina segmentata*: effects of relative body size, prior residency and female value on contest outcome and duration. *Ethology* 103: 488–498.
- ★ Head, G. P., 1991 (PhD), Size variation and sexual size dimorphism in spiders, with special reference to the Agelinids *Agelinopsis emertoni* and *A. pennsylvanica*. Prof. D. I. Rubenstein.
- ★ Head, G., 1995, Selection on fecundity and variation in the degree of sexual size dimorphism among spider species (Class Araneae). *Evolution* 49: 776–781.
- ★ Janetos, A. C., 1980 (PhD), Foraging tactics of two guilds of web-spinning spiders. Prof. H. S. Horn.
- ★ Janetos, A. C., 1982, Foraging tactics of 2 guilds of web-spinning spiders. *Behav. Ecol. Sociobiol.* 10: 19–27.
- ★ Janetos, A. C., 1983, Comparative ecology of 2 linyphiid spiders (Araneae, Linyphiidae). *J. Arachnol.* 11: 315–322.
- ★ Nathan, D., 1990, Web repair in several species of orb-weaving spiders. Prof. L. K. Johnson.

6. Insects

- ★ Brines, M. L., and J. L. Gould, 1979, Bees have rules. *Science* 206: 571–573.
- ★ Brines, M.L., and J. L. Gould, 1982, Skylight polarization patterns and animal orientation. *J. Exp. Biol.* 96: 69–91.
- Bristow, C. M., 1982 (PhD), The structure of a Temperate Zone mutualism: ants and Homoptera on New York Ironweed (*Vernonia noveboracensis*). Profs. R. M. May and H. S. Horn.
- Bristow, C. M., 1983, Treehoppers transfer parental care to ants — a new benefit of mutualism. *Science* 220: 532–533.
- Bristow, C. M., 1984, The life histories of 2 species of Homoptera on ironweed (*Vernonia* spp) with summaries of host and geographical ranges. *J. Kansas Entomol. Soc.* 57: 632–638.
- Bristow, C. M., 1984, Differential benefits from ant attendance to 2 species of Homoptera on New–York ironweed. *J. Anim. Ecol.* 53: 715–726.
- Bristow, C. M., 1984, Spatial segregation between *Aphis-vernoniae* (Aphidae) and *Publilia-reticulata* (Membracidae), 2 species of colonial Homoptera on New–York ironweed. *Canadian Entomol.* 116: 855–859.
- Bristow, C. M., 1985, Sugar nannies. *Nat. Hist.* 94: 62–??.
- ★ Dyer, F. C., and J. L. Gould, 1981, Honey bee orientation: a backup system for cloudy days. *Science* 214: 1041–1042.
- ★ Endler, J. A., 1984, Progressive background in moths, and a quantitative measure of crypsis. *Biol. J. Linn. Soc.* 22: 187–231.
- Evans, J., 1988, Ants: their colony dynamics and interactions with plants. Prof. N. Pierce.

- Furman, L., 1979, Moth wing patterns and background matching. Profs. J. A. Endler and H. S. Horn.
- ★ Gould, J. L., 1980, Sun compensation by bees. *Science* 207: 545–547.
- ★ Gould, J.L., J.L. Kirschvink, K. S. Deffeyes, and M. L. Brines, 1980, Orientation of demagnetized bees. *J. Exp. Biol.* 86: 1–8.
- ★ Gould, J. L., 1984, Processing of sun-azimuth information by honey bees. *Anim. Behav.* 32: 149–152.
- ★ Gould, J. L., 1985, How do bees remember flower shape? *Science* 227: 1492–1494.
- ★ Gould, J. L., 1986, Pattern learning in honey bees. *Anim. Behav.* 34: 990–997.
- ★ Gould, J. L., 1986, The locale map of honey bees: do insects have cognitive maps? *Science* 232: 861–863.
- ★ Gould, J. L., 1987, Landmark learning in honey bees. *Anim. Behav.* 35: 26–34.
- ★ Gould, J. L., 1987, Honey bees store learned flower-landing behaviour according to time of day. *Anim. Behav.* 35: 1579–1581.
- ★ Gould, J. L., 1988, Resolution of pattern learning in honey bees. *J. Insect Behav.* 1: 225–233.
- ★ Gould, J. L., 1988, A mirror-image ambiguity in honey bee visual memory. *Anim. Behav.* 36: 487–492.
- ★ Gould, J. L., 1989, Timing of landmark learning in honey bees. *J. Insect Behav.* 1: 373–378.
- ★ Ives, A. R., 1988 (PhD), Aggregation and the coexistence of competing insects: a theoretical model supported with evidence from the carrion-fly community. Profs. R. M. May and H. S. Horn.
- ★ Ives, A. R., 1991, Aggregation and coexistence in a carrion-fly community. *Ecol. Monogr.* 61: 75–94.
- ★ King, G., 1979, The process of mating in the honey bee, *Apis mellifera* L. Prof. J. L. Gould.
- Lillydahl, W., 1970, Interactions among ant colonies on the Princeton University Campus. Profs. H. S. Horn and R. H. Mac Arthur.
- ★ O'Brien, D. M., 1998 (PhD), Fuel use in flight and reproduction by the nectar-feeding Hawkmoth *Amphion floridensis*. Prof. C. Martinez del Rio.
- ★ O'Brien, D. M., 1999, Fuel use in flight and its dependence on nectar feeding in the hawkmoth *Amphion floridensis*. *J. Exp. Biol.* 202: 441–451.
- ★ Rubenstein, D. I., 1984, Resource acquisition and alternative mating strategies in water striders. *Amer. Zool.* 24: 345–353.
- ★ Rubenstein, D. I., 1989, Sperm competition in the water strider, *Gerris remigis*. *Anim. Behav.* 38: 631–636.
- Schneider, J., 1979 (PhD), Phenological and kntromorphic aspects of the population ecology of the Fall Cankerworm *Alsophila pometaria* Harris (Lepidoptera: Geometridae). Profs. H. S. Horn and J. A. Endler.
- Tonkyn, D. W., 1985 (PhD), Temporal and spatial convergence in a guild of sap-feeding insects on Early Goldenrod (*Solidago juncea* Ait.: Asteraceae). Profs. R. M. May and H. S. Horn.
- Tonkyn, D. W., 1986, Predator-mediated mutualism — theory and tests in the Homoptera. *J. Theor. Biol.* 118: 15–31.
- ★ Towne, W. F., 1985 (PhD), The spatial precision and mechanisms of the dance communication of Honey Bees: experimental and comparative studies. Prof. J. L. Gould.
- ★ Towne, W.F., and W. H. Kirchner, 1998, Hearing in honey bees — detection of air-particle oscillations. *Science* 244: 686–688.

7. Birds

- ★ Andrews, M. S., 1998, The effect of cover density on the foraging behavior of overwintering sparrows and juncos. Prof. H. S. Horn.
- ★ Arnold, H. L., III, 1992, The effects of novel experimental stimuli and eye-like patterns on the Black-capped Chickadee (*Parus atricapillus*), the White-throated Sparrow (*Zonotrichia albicollis*), and the Slate Colored Junco (*Junco hyemalis*). Prof. H. S. Horn.
- Baird, J. W., 1975, The selection and utilization of fruit by birds in an eastern forest. Prof. J. W. Terborgh.
- ★ Carvin, C. L., 1982, Aggression in foraging flocks of wintering White-throated Sparrows and Slate Colored Juncos. Profs. H. S. Horn and D. I. Rubenstein.
- ★ Cho, R. N., T. P. Hahn, S. MacDougall-Shackleton, and G. F. Ball, 1998, Seasonal variation in brain GnRH in free-living breeding and photorefractory house finches (*Carpodacus mexicanus*). *Gen. Comp. Endocrinol.* 109: 244–250.
- * Floyd, T., 1990, The edge effect on forest breeding bird community structure: a New Jersey case study. Prof. H. S. Horn.
- Goodman, W. M., 1980 Dominance and winter flocks of Chickadees and Titmice. Profs. J. W. Terborgh and H. S. Horn.
- ★ Kim, M. H., 1988, Risk sensitivity, foraging choice, feeder choice, and behavioral decisions in overwintering birds. Prof. H. S. Horn
- ★ Leithe, E., Jr., 1968, Confrontations at Stony Ford: a study of aggressiveness and submissiveness during bird feeding. Prof. R. H. Mac Arthur.
- Malcarney, H. L., 1992, Phylogenetic predictions of physiology and behavior: identifying sucrose intolerance in birds. Prof. C. Martinez del Rio.
- ★ Morgan, M., 1985, Foraging patterns and pecking rates of a mixed species wintering flock at a feeder. Prof. H. S. Horn.
- * Mount, R. H., 1994, Avian conservation: relationship of territory size and minimum area requirements. Prof. H. S. Horn.
- Nebel, P., 1967, The Turkey Vulture (*Cathartes aura*): a study of its adaptations. Profs. H. S. Horn and R. H. Mac Arthur.
- Petren, K., 1985, The ecology of the White-throated Sparrow (*Zonotrichia albicollis*): inter-specific and intra-specific interactions of a Winter flock. Staff Member H. Suthers.
- Pope, G. T., 1980, Temperature and flock size in wintering sparrows. Prof. H. S. Horn.
- ★ Pringle, D., 1988, The foraging ecology of the Princeton Vultures. Prof. H. S. Horn.
- * Romano, P. S., 1979, Breeding bird communities in Central New Jersey suburbs. Prof. J. W. Terborgh.
- ★ Schneider, K. C. J., 1979 (PhD), Dominance hierarchies, foraging and predation in Winter flocks of White-throated Sparrows (*Zonotrichia albicollis*). Prof. H. S. Horn.
- ★ Schneider, K. J., 1984, Dominance, predation, and optimal foraging in white-throated sparrow flocks. *Ecology* 65: 1820–1827.
- ★ Smythe, T. B., 1981, Aggression and food distribution in mixed species flocks. Prof. H. S. Horn.
- Stanley, T. G., Jr., 1987, The effects of flock size and time of day on the vigilance behavior of Mourning Doves. Prof. N. Pierce.
- Tabby, D. S., 1980, The role of visual agonistic display in the foraging and social organization of Winter mixed Chickadee flocks. Prof. H. S. Horn.

8. Mammals

- ★ Ardley, K. G., 1995 (PhD), The frequency, distribution, and maintenance of t haplotypes in natural populations of mice (*Mus musculus domesticus*). Profs. D. I. Rubenstein and L. M. Silver.
- * D'Agostino, M. L., 1998, Too many deer — an analysis of the effects and management of White Tailed Deer. Prof. D. A. Stratton.
- Edwards, P., 1981, Coat color polymorphisms and home range sizes of the Gray Squirrel, *Sciurus carolinensis*, at Princeton University. Profs. J. L. Hoagland and J. W. Terborgh.
- * Graham(–Velikonja), E. S., 1995 (MS), Deer in New Jersey: Are they changing our forests? Profs. H. S. Horn and C. Martinez del Rio.
- ★ Jacobs, L. F., 1987 (PhD), Food-storing decisions in the Gray Squirrel (*Sciurus carolinensis*). Profs. D. I. Rubenstein and H. S. Horn.
- ★ Jacobs, L. F., and E. R. Liman, 1991, Gray squirrels remember the locations of buried nuts. *Anim. Behav.* 41: 103–110.
- ★ Jacobs, L. F., 1992, The effect of handling time on the decision to cache by gray squirrels. *Anim. Behav.* 44: 522–524.
- ★ Kiltie, R. A., 1973, A comparative study of intraspecific behavior and population regulation in the Woodmouse *Peromyscus leucopus* and the Meadow Mouse *Microtus pennsylvanicus*. Prof. H. S. Horn.
- ★ Liman, E., 1985, The role of memory in the retrieval of caches by Gray Squirrels. Grad. Student L. F. Jacobs (q.v.) and Prof. D. I. Rubenstein.

- ★ Mac Arthur, R. H., 1968, Selection for life tables in periodic environments. *Amer. Nat.* 102: 381–383. N.B. Although this paper is entirely theoretical, like many of MacArthur's theoretical works, it derives from field observations, ... in this case in an ill-fated enclosure for voles (*Microtus pennsylvanicus*) established by Mac Arthur and H. S. Horn in 1967 in the big field next to the barn at Stony Ford.
- Wilson, H., 1983, Caching behavior of the Gray Squirrel *Sciurus carolinensis*. Grad. Student L. F. Jacobs (q.v.) and Prof. D. I. Rubenstein.