

Advice on selection of a research project topic:

You have a limited amount of time available for this project, so pick your topic carefully. Part of the reason for requiring a proposal is so that each of you can have my input into the design and execution of your project. It is imperative that you start this project early; many species will be available early in the fall, but few will be around later. It is usually best to work with an animal that is relatively common and conspicuous, so that you can find enough of them to collect data. Birds and insects are probably the best bet for field projects; other vertebrates, such as fish, and invertebrates like crayfish, pillbugs (roly-polys), and spiders are available as well, and some species and behaviors lend themselves to laboratory projects. Most animals (around here, at least) spend a lot of their time doing something. It is necessary simply to watch them for some time to find out what they are doing, then ask yourself some questions about their behavior. In addition to the equipment listed below, it is possible to construct various types of experimental apparatus, such as habitat preference chambers, pheromone choice chambers, and infrared light observation chambers (for nocturnal observations).

Potential research project topics:

- Foraging behavior of honeybees, bumblebees, or butterflies
- Foraging behavior and vigilance in fox squirrels
- Colony size and fecundity in paper wasps
- Small mammal home range size
- Predator avoidance by grasshoppers
- Habitat selection by cricket frogs
- Habitat selection by pillbugs
- Group foraging in cattle egrets, grackles, red-winged blackbirds, starlings, etc.
- Positive assortative mating in humans
- Fruit fly mating behavior
- Foraging and social behavior in fire ants or seed-harvester ants
- Habitat selection and spatial distribution of fire ant or seed-harvester ant colonies
- Reproductive behavior of soldier beetles
- Sexual dimorphism in leaf-footed bugs, soldier beetles, field crickets, crayfish, and others
- Prey capture by crayfish
- Foraging and food plant selection in monarch butterflies or swallowtail butterflies
- Foraging behavior of mosquitofish, shiners, or bluegill
- Mating, mate-guarding, and oviposition in damselflies or dragonflies
- Body size and fecundity in field crickets, leaf-footed bugs, and others
- Dominance relations in crayfish
- Colonization of cow pies

Equipment available in the Biology department:

portable electronic balances	shovels and trowels
benchtop milligram balances	sound recording equipment
dial calipers	measuring tapes of various lengths
digital electronic thermometers	flagging tape
binoculars	sweep nets
dissecting microscope with ocular micrometer	insect nets and killing jars
berlese funnel	marking paints
aquaria and terraria of various sizes	timers
aquatic dip nets and seines	surber sampler
surveying equipment and brunton compass	spotting scopes
small mammal traps	snorkels and diving masks

Field sites that are accessible to Austin College students:

Bratz Field Laboratory, north of Sadler, TX (west of Sherman on Hwy. 82). The Bratz Lab is about 30 km from Sherman. About 30 ha (75 acres), mostly wooded but with an area of about 8 ha that is more open and grassy with scattered junipers. Some herps and birds, and insects in the open area. Property of AC.

Buckner Nature Preserve, east of Denison, TX. About 15 km from campus. About 47 ha, mostly deciduous woods but with an area of about 8 ha that is open. Also contains a stand of loblolly pine. Some birds and possibly herps in the right place and at the right time. Property of AC.

Garnett Prairie, south of Pottsboro, TX, about 16 km northeast of Austin College, north of Grayson County Airport. About 25 ha, mostly former farmland so heavily disturbed, but with about 4 ha of undisturbed blackland prairie. Good for insects and some birds. Property of AC.

McCarley Woods Nature Preserve, about 16 km east of Sherman, off of Hwy 56 on Pink Hill Rd. About 5 ha, some upland prairie but mostly hardwood forest. Good for some insects, some birds, and possibly herps. Property of AC.

Sneed Environmental Research Area, about 20 km west of Sherman, off of Hwy 82. About 40 ha, mostly disturbed prairie but with three ponds and a wooded stream bottom. Good for birds and insects. Adjacent to Hagerman NWR (to the west). Property of AC.

Herman Baker Park, in southwest Sherman, off Hwy 56 (Houston/Lamar). This park contains a lake of about 4 ha, which is surrounded by a wooded area as well as more open areas. Good for birds. City of Sherman park.

Hagerman National Wildlife Refuge, on the Big Mineral Arm of Lake Texoma, north and west of Sherman, about 30 km. This is a preserve of about 4450 ha, which contains a diversity of habitats including mudflats and lakeshore, prairies, and wooded areas. Great for birds, and for insects on flowering plants such as buttonbush. Operated by US Fish and Wildlife Service.

Denison Dam area of Lake Texoma, north of Sherman on Hwy 75 and then Hwy 91, about 30 km. There are several interesting places near the dam. The Red River below the dam usually is home to several bird species, as is Shawnee Creek which enters the Red River from the south about 1 km below the dam. Shawnee Creek at Ross Perot Crossing (on Hwy 91 south of the dam) is also an interesting area; several species of fish inhabit the stream here. A marsh area north of the Red River and below the dam also contains many bird species, as well as fish and herps. Operated by US Army Corps of Engineers.

The **Austin College Campus** provides many opportunities for behavioral observations.

If you wish to go farther afield, there are several interesting spots within 1-3 hrs drive of Sherman. The department has a limited amount of camping equipment if you want to go a relatively long distance.

Tishomingo National Wildlife Refuge, on the upper Washita River arm of Lake Texoma, about 100 km from Sherman. This is the "sister" preserve of Hagerman NWR, and includes about 10,000 ha of bottomland hardwood forest, lakeshore, mudflats, and some upland forest areas. Good for birds, especially later in the year when waterfowl arrive. Check in with refuge personnel at the headquarters before wandering off into the refuge. Operated by US Fish and Wildlife Service.

Pennington Creek, near Tishomingo, Johnston Co, OK, about 120 km from Sherman. There are several interesting spots along the downstream part of this clear-water, gravel bottom stream. The Tishomingo Municipal Golf Course provides access to an interesting spot with riffles and pools, where fish and frogs are common, along with a wide variety of aquatic invertebrates. Upstream, there is a Nature Conservancy area that we have access to, with birds as well as aquatic creatures. Be careful

where you enter the stream, because some of the redneck landowners are quite territorial. See me for directions to these places.

Wichita Mountains National Wildlife Refuge, north of Lawton, Comanche Co, OK, about 300 km from Sherman. This is a large refuge in the mid-grass prairie of western Oklahoma, with about 9000 ha in the public access area. Good for several bird species that are rare around Sherman. This is also a good place to observe prairie dogs as well as large mammals such as bison and elk. Do not approach bison closely – they can go from standing still to 45 kph in about three steps. Bison have horns that are about 0.5 m long, and curve strongly upward. There are several gorings of ignorant tourists in the refuge each year. Operated by US Fish and Wildlife Service.

Library resources:

The following are some of the journals in our library that have articles on animal and human behavior. There may be others that have material of interest to you.

American Anthropologist	Evolution
American Ethnologist	Family Violence and Sexual Assault Bulletin
American Journal of Psychology	Gender and Society
American Journal of Sociology	Human Nature
American Midland Naturalist	Individual Psychology
American Naturalist	Journal of Comparative Psychology
American Sociological Review	Journal of Cross-cultural Psychology
Animal Behaviour	Journal of Experimental Psychology
Behavior Genetics	Journal of Family Violence
Behavioral Ecology and Sociobiology	Journal of Marriage and the Family
Behavioral Neuroscience	Journal of Personality and Social Psychology
Behavioral Science	Journal of Social Psychology
Canadian Journal of Zoology	Nature
Criminology	Psychobiology
Current Anthropology	Science
Demography	Sex Roles
Developmental Psychology	Social Psychology

The following journals contain articles on behavior, but are not in our library. Use the electronic databases in Abell Library to find titles and citations, then either print the full-text articles or use interlibrary loan to get the articles. Be aware that the latter process takes some time. There may be other journals available that I have not listed.

Annals of the Entomological Society of America	Journal of Insect Behavior
Australian Journal of Zoology	Journal of the Kansas Entomological Society
Behavioral Ecology	Oecologia
Behaviour	Oikos
Ecological Entomology	Pan-Pacific Entomologist
Ethology	Psyche