

Adequacy of Resources

1. Facilities

FNR and BIOL faculty have extensive resources available for ecological training in teaching and research, with key facilities highlighted in Table 3. The departments coordinate the Indian Pine Natural Resources Field Station (IPNRFS), encompassing 4,258 acres in the prairie-forest transition zone of west-central Indiana and containing 7 research and educational properties that are owned and managed by Purdue (5 by FNR and BIOL). The properties collectively provide a variety of contexts for studies of human impacts on ecological systems, including intensive row-crop agriculture, second-growth forest on abandoned farmland, mature native forest, and restored and constructed wetlands. In addition to the facilities of IPNRFS, FNR owns/manages 16 other woodland properties across Indiana, totaling 1,582 acres, and leases an education center in Michigan's upper peninsula for use during a 5-week natural resources practicum held each spring, an activity in which 8 of the training faculty routinely participate.

2. Equipment and other resources

GAANN Fellows will have an array of equipment and instrumentation available to them. Examples of field sampling equipment include >3,500 mammal live traps, 35 ultrasonic detectors (bat studies), >10 radio-telemetry systems (movement and behavior studies), a Peeper remote video surveillance system (nest predation/behavior), Marantz tape recorders and Sennheiser microphones along with powered speakers (sound analysis studies), 2 dart guns (remote immobilization), and 3 night-vision binoculars (nocturnal behavioral studies). A fleet of nearly 15 trucks is maintained by FNR and available for field use, including 3 with cab-mounted telemetry capabilities.

Table 3. Selected remote and on-campus facilities for field and laboratory research.

Remote Facilities (IPNRFS)	Features
A. A. Lindsey Teaching Laboratory for Field Ecology	1,000 ft ² , constructed 2001
Aquaculture and Aquatic Ecology Laboratory	7,700 ft ² wet lab, 12 ¼-acre earthen ponds, 5 experimental aquaria systems, fish-hatching room, 6 computerized environmental chambers, dedicated well, constructed 1990
Purdue Wildlife Area Animal Care Facility	1,700 ft ² , 5 animal rooms with separate air exchange, temperature and photoperiod control, constructed 1993, 30,000 ft ³ storage building for field sampling equipment, built 2000
John S. Wright Research and Education Center (completion by May 2003)	instructional lab (capacity = 35), research lab, 2 bay greenhouses (4,200 ft ²) with head-house, instrumentation room for remote, real-time monitoring of ecosystem processes, conference center (capacity = 130)
On-Campus Facilities	
Greenhouses	~19,000 ft ² , recently refurbished for plant propagation and culture (modern lighting and temperature control)
Cold-storage chambers	1,300 ft ³ for seed scarification, chilling experiments
Aquaculture laboratories	144 40-liter tanks, 72 80-liter tanks, 56 80-liter tanks, 16 200-liter tanks, and several 20-m runs for behavioral and growth studies on transgenic medaka and cichlids (fish)
Small animal laboratory	40,000 ft ² and 11 rooms dedicated to culture of amphibians (life-history work) and snails (parasite work), and to house small birds (behavioral and physiological studies)

Studies of molecular ecology and ecological genetics are facilitated by a Biorobotics Total Array System and a GSI Lumonics Scanarray 4000, Autogen automated DNA extractors, Hamilton liquid-handling robot, 5 ABI377XL automated sequencers, a MerMade Oligonucleotide Synthesizer, 6 Li-Cor-automated sequencers, 18 thermal cyclers, centrifuges, and ultra-cold freezers.

Purdue is renowned for its computing facilities, including 2 super computers (IBM Risc System 6000 and IBM SP) and a computer consulting center. The Spatial Data Analysis Laboratory in FNR includes 10 fully equipped GIS work stations. Additional facilities and expertise are available from the Center for Advanced Applications in GIS and the Laboratory for

Applications in Remote Sensing within the School of Agriculture. A fully staffed statistical consulting office also serves graduate students and faculty at Purdue.