

History

When the School of Agriculture was organized into departments in 1884, the Department of Horticulture and Entomology was established under the leadership of an entomologist, James Troop. Entomology became a separate department under Troop's leadership in 1912. JJ Davis succeeded Troop as head in 1920, and it was under his leadership that the first baccalaureate program in entomology at Purdue was established in 1928. In 1936, the first extension entomologist was appointed and the urban pest control conference was initiated. In 1942, the department granted the first Ph.D. in entomology. The first undergraduate structural pest control curriculum in the United States was established at Purdue in 1946. Near the end of Davis' tenure as head, the department's faculty was concentrated in Agricultural Hall. John V. Osmun succeeded Davis as department head in 1956. Under Osmun's leadership, the university added 18 new academic positions to the department and adjunct appointments were created for USDA entomology personnel and USDI personnel long associated with the department. In 1965, Agricultural Hall was renamed Entomology Hall. In 1972, Eldon E. Ortman was appointed head of entomology. Under his leadership, the department's research and extension programs grew and expanded to foreign countries; computer capabilities were expanded; and physical facilities were dramatically enhanced with the move of research and extension programs into the new Agricultural Research Building in 1983. Christian Y. Oseto succeeded Ortman as head in 1990. Among the landmarks of his tenure were the growth of Entomology's outreach to undergraduates in other disciplines; creation of Bug Bowl™ and other innovative outreach activities, and their growth to national stature; further growth in the department's international programs; and the move of the department's administrative offices, teaching and extension programs, and many research laboratories to their current location in Smith Hall. Entomology's current head, Steve Yaninek, was appointed in September 2000.

Entomology in Indiana before Purdue University

In the early 19th century, the newly established "northwest" territory of Indiana (which included all of present day Indiana, Illinois, and Wisconsin, and parts of Michigan and Minnesota) became a destination for post-independence traders and settlers moving west. Early visitors were both annoyed and impressed by insect pests. Travelers along the Ohio River and northern trade routes through the future state mentioned nuisance insects like gnats, flies, bedbugs (apparently some things just don't change), and "mosquitoes" (remember malaria was endemic in this area during the 19th century). Armyworms damage to corn and timothy were so severe that farmers devised novel mechanical methods of pest control including horse-drawn logs passed through the fields in furrows to kill the marching hordes.

Arguably one of the most famous entomologists ever associated with Indiana was also one of the earliest - Thomas Say a renowned systematist and the father of American Entomology. Thomas Say first passed by Indiana on the Ohio River in 1819 on his way from Pittsburgh to St. Louis, then again in 1823 when he crossed the State from Fort Wayne (it was an actual fort then) to Chicago as the zoologist on Long's Expedition to the Source of the St. Peter's River. And

finally in 1826 as part of the expedition known as The Boatload of Knowledge (really!) when he settled in New Harmony, Indiana and lived until his death in 1834. While in New Harmony, he finished his famous 3 volume series *American Entomology, or Descriptions of the Insects of North America*. Among the more than 1500 American insects he described were 26 economically important insects found in Indiana including well-known pests such as Hessian fly, peach tree borer, and plum curculio.

Not much of entomological significance happened in Indiana for many years after the death of Thomas Say. There were collections and biological notes made by a few amateur entomologists, but it would be 20 years (1854) before Asa Fitch was appointed as the first professional entomologist in the United States (in New York state), and 50 years (1884) before F. M. Webster joined Purdue with USDA to become the first professional entomologist in Indiana.

Entomology at Purdue - the Early Years

Although Purdue was established in 1869, and the first students walked through the door in 1874, the first curriculum in the School of Agriculture and Horticulture was established only in 1876, and it would take another 4 years before the first students enrolled in this option. Apparently, the first Purdue students were either not interested in the School of Agriculture and Horticulture, or the first applicants were not impressed with a curriculum that had no dedicated faculty to teach the courses. The University got the message and hired Charles L. Ingersoll in 1879 as the first instructor in the School. The first class of students in Agriculture and Horticulture began their studies in the fall of 1879, and it would be the spring of the next year before the first six-week course in entomology was taught during the third term for first year students.

W. C. Latta was recruited in 1882 to join the faculty, but Ingersoll decided to leave Purdue a few months later leaving Latta as the sole instructor in Agriculture. The demand for additional faculty in the School of Agriculture and Horticulture prompted the hiring of James Troop in 1884 (the same year the School dropped "Horticulture" from its title) to teach and head the new Department of Horticulture and Entomology. Troop carried much of the teaching responsibilities for this new department for the remainder of the 19th and the early part of the 20th centuries. Troop was the first to be called state entomologist in Indiana. This designation was granted when the original Indiana San Jose Scale and Nursery Inspection law was passed in 1899, and he was put in charge of enforcing the new law. Troop held this title until 1907 when a more comprehensive law was passed, and a new state office was established in Indianapolis. Benjamin W. Douglas became the first full-time state entomologist in a long line of distinguished professionals under this revised act. Troop continued to teach after Horticulture and Entomology split into separate departments in 1912, and for 9 more years after JJ Davis became department head in 1920. Troop enjoyed teaching and was well liked by his students, so continuing as a teacher after 36 years as department head was not a problem. However, planning for retirement had been a problem for him. Evidently, the University did not have a

pension scheme in place for the very first faculty, and Troop managed a pension received directly from the department after he retired in 1929 until his death in 1941.

By 1884, entomology was taught in the first term of the junior year. These early students had a number of important resources available to help them with their education in entomology. One was the first insect collection established in 1876-1877, which was probably put in place specifically to support teaching. This early collection included specimens collected in the vicinity of Lafayette, and the Scheuch collection with 7000 specimens and more than 2000 species, mostly beetles, from Europe. The ultimate fate of this collection remains unknown, hence the speculation that the material was used for teaching. The current research collection in the department had its start with the purchase of the T. B. Ashton beetle collection in 1896. The other important resource for the first students was the university library, which began with 30 books in 1874. Four of the original acquisitions were books on entomology, and included "Insects Injurious to Vegetation" by Thad W. Harris, "Guide to the Study of Insects" by Alpheus S. Packard, "The Hive and the Honey Bee" by L.L. Langstroth, and "Mysteries of Bee Keeping" by M. Quinby. All of these books can still be found in Purdue's library inventory today.

The curriculum changed slowly in the 19th century, but one significant change was the creation of the Winter Short Course designed for "students" interested in "modern" agriculture, but not necessarily in a college degree. The Winter Short Course started in 1895 as 8 to 11 weeks of intensive lectures with a focus on general agriculture and included economic entomology. By 1902, students could specialize in general agriculture, horticulture, dairy, or animal husbandry. This technical training opportunity became a popular mainstay at Purdue and continued each winter until the early 1970s.

It would be 50 years after the death of Thomas Say before the next professional entomologist would appear on the scene in Indiana. As it happened, that person was probably F. M. Webster who was sent to Purdue in 1884 as a special agent from USDA. He worked for the Division of Cereal and Forage Insects and became a consulting entomologist to the Department of Horticulture and Entomology. Webster was never on the department's payroll, but he was listed as a member of the staff, sometimes as professor of economic entomology and sometimes as entomologist. Ingersoll and Latta may have taught entomology, but their training and expertise was in general agriculture. Likewise, Troop was trained as a generalist in agriculture, and although he arrived at Purdue the same year as Webster, he split his teaching time with horticulture. Webster, on the other hand, worked exclusively on insect problems. He published an article on "The Hessian Fly" in the inaugural issue of the Experiment Station Bulletin in December 1884, which established a foundation for more than a century of Hessian Fly research and almost continuous collaboration between the department and USDA at Purdue.

Webster left Purdue in 1891 to become state entomologist in Ohio, but rejoined USDA as director of the Division of Cereal and Forage Insects in Washington, D.C. It was while in this position, that Webster established one of the first USDA field stations in the US in Richmond, Indiana in 1905. There is a connection between this field station and JJ Davis – a future department head in Entomology. A few years after the lab was established in 1911, JJ (or "June

Bug” as he was sometimes affectionately called) Davis, joined the USDA Bureau of Entomology in charge of the Cereal and Forage Insect Laboratory (this was after the lab moved from Richmond, Indiana to the Purdue Experiment Station in West Lafayette in 1909). JJ succeeded W. J. Phillips as head of the lab in 1913 until he transferred to New Jersey in 1919 to take charge of the new USDA Japanese Beetle Lab.

The JJ Davis Years: 1920-1956

During the 36-year career of JJ Davis, the department evolved from a small service unit into a fully functional department. The faculty grew from 3 instructors (J. Troop, W.A. Price and JJ) teaching service courses and conducting a limited amount of research in 1920 to 13 faculty by the mid 50s responsible for a growing student population, 2 new undergraduate curricula, a new graduate program, and expanding extension and research portfolios.

The entomology major was finally established in 1928, but 11 BS and 7 MS degrees were credited to the department prior to that time, probably granted either under natural history or as a special course in entomology. After the major was established, the first BS in entomology was awarded to Kenneth Haines in 1929, while the first BS in structural pest control established in 1946 was awarded to Harlan Shuyler in 1949 (he also received the first MS and PhD in structural pest control in 1950 and 1954). The first PhD was given to George Gould in 1942 for his research on the striped cucumber beetle. By 1954 entomology had awarded 86 BS (38 did graduate work yielding 27 MS and 4 PhD degrees, and one professional degree in medicine). Course offerings expanded from 5 in 1920 to 31 in 1954 taught mostly by JJ, Leland Chandler, Howard Deay and John Osmun. The entomology student organization started in 1928 was renamed the Thomas Say Society in 1931.

Extension entomology at Purdue began during this period. Glen Lehker was hired in 1936 as the first full time specialist, and became famous for his “chalk talks.” He also developed a 4-H entomology club program in Indiana that became the model for the national program. Other faculty with extension responsibilities included B.E. Montgomery for bees and wasps, Don Schuder for ornamental plant pests, and John Osmun for urban pests. Carlyle Carr followed by Galen Oderkirk was part of a US Department of Interior presence in the department working on rodent control that continues today as the USDA Wildlife Conflict Management program. JJ brokered a special relationship with the pest control industry predicated on increasing professionalism through training. The first Purdue Pest Control Conference was held in 1937. It attracted 68 pest control operators from 14 states. Eighteen years later, it had grown to 300 PCOs from all across the country. JJ also started the first recorded outreach activity for children with his program to introduce Chinese mantids in Tippecanoe county in the 1920s.

The research portfolio grew gradually until the end of WWII and the advent of synthetic pesticides. The focus was on general crop protection, Hessian fly host plant resistance and structural pest control including flies, termites and soil inhabiting insects, plus the new arrivals - the European corn borer (1926) and Japanese beetle (1934). By 1956 the research core

faculty were Howard Deay, George Gould, G.E. Marshall, B.E. Montgomery, Curt Wilson, R.T. Everly and Don Schuder. After WWII, USDA augmented their research on Hessian fly with Milton Caroline followed by Bill Fitzwater and Robert Gallun (who stayed nearly 4 decades), and moved the unit into the department in 1956 – the same year USDA scientists became adjunct faculty. The foundation of the department we know today was in place by 1956 when JJ retired and John Osmun became head.

Fifty Years of Entomology at Purdue University – 1956-2006

Modern entomology at Purdue has its roots in Hessian fly host plant resistance research dating back to the first experiment station publication in 1884, and an extraordinary partnership with the structural pest control industry since the mid-1930s. There has been a steady parade of arthropod pests to fill our research and extension portfolios including well known endemic species e.g. Hessian fly, chinch bugs, wireworms, grubs, spider mites and common domestic ants, termites, and cockroaches. Yet a plethora of new pests have commanded significant pest management time and attention including Japanese beetle, cereal leaf beetle, soybean cyst nematode, alfalfa weevil, gypsy moth, western corn rootworm, Mexican bean beetle, Colorado potato beetle, Asian longhorn beetle, soybean aphid, and emerald ash borer.

An early commitment to balance applied and basic research in faculty hires continues today. Host plant resistance and integration of pest control technologies topped the research agenda with basic work on physiology, biochemistry and genetics, and applied work on pest biology, biological control, toxicology and residue chemistry. Leading systematic contributions include work on odonates, nematodes and mayflies. Our identity in the state is strongly linked to extension which over the decades expanded from crop production to include horticulture, apiculture, stored products and the food industry, structural, ornamental, turf grass, master gardener, IPM in schools, and public health pest management. Many extension and research programs now have overseas components. Science education innovations like the “Linnaean Games”, K-12 programs like “Insectaganza”, and nationally acclaimed public programs like “Bug Bowl” are unique contributions with considerable national visibility. A culture of teaching excellence and classic textbooks on structural pest management and aquatic entomology authored at Purdue benefit our students.

Outstanding achievements include increased professionalism in the structural pest control industry, development of commercial host plant resistance, establishing national pesticide applicator standards, implementing novel science education outreach, and providing ESA leadership. With the past as prologue, our emphasis today includes genomics, urban pest management, field crops and livestock pest management, environmental stewardship, international development, and science education outreach.