American University Photo: Jeff Watts



# **Natural Areas on Campus**

Campus natural areas are defined as any "wild" parcels within campus boundaries, composed mainly of native vegetation, whether natural (pre-settlement) or restored, large or small. These include wetlands, ponds, shorelines, rivers, forests, meadows, and prairies that are managed primarily for their "wildness." Stormwater ponds and filtration systems have been installed and wetlands have been restored on many campuses, becoming magnets for wildlife. At some schools, the built parts of campus take up only a small part of the whole. At others, the wild spots are islands of nature surrounded by buildings, roads, and lawn. Many natural areas feature educational signs or trails and have recreational uses, and their close proximity to classroom buildings offers ready access for student research and learning experiences.

"Natural places are among the more scenic and photogenic places on campus. During 2014-15, one of the alternating photos on the homepage of the **University of Louisiana at Lafayette**<sup>72</sup> (LA) featured a great egret with a caption about the university's Cypress Lake and its wildlife, which includes alligators. Cypress Lake, according to Kathleen Thames, Associate Director of Communications, is a two-acre microcosm of the nearby Atchafalaya River basin. It was formed decades ago when an existing cypress tree grove was flooded. Today, the small lake is encircled by university buildings.



Roughly half of the **College of Menominee Nation's**<sup>73</sup> (WI) 60-acre campus is natural area, composed of forest, wooded wetland, and fields. Part of the forest is old growth, with towering white pines, red oaks, and many other northern trees.

The forest also has a rich understory of shrubs, ferns, mosses, and wildflowers. An eight-sided shelter with interpretive panels about the Menominee Forest was installed along a footpath in 2014, and deeper in the forest is a 100x100-meter study plot used by students for a forest inventory project. Animals seen around the campus include black bears, sandhill cranes, bald eagles, red foxes, and porcupines.

Saint John's University<sup>74</sup> (MN) is a school where, unlike most colleges and universities, the vast majority of its campus is earmarked for nature. Its central campus occupies only 80 acres out of a total of 2,740. As described on the university's website, campus lands include "wetlands, several lakes, an oak savanna, a restored prairie and hiking trails that wind through an extensive pine and hardwood forest."

# FEATURED CAMPUSES

#### Ithaca College<sup>75</sup> (NY)

2014 marked the ten-year anniversary of the Ithaca College Natural Lands (ICNL) program. The ICNL is a four-parcel conservation reserve system totaling 560 acres of mostly hilly wooded lands that is collaboratively managed by IC students, faculty, and staff. The four preserves are South Hill Natural Area East and South Hill Natural Area West—both adjacent to campus—and the Ithaca College Natural Resource Reserve and Bob Robinson Family Reserve, each located a few miles away. The latter two are covered ahead in Section 4—remote campus properties.

More courses every year use the Natural Lands as their outdoor classroom, reaffirming the overarching value of the reserves as educational working landscapes. The core team of students managing the Natural Lands on a day-to-day basis now has 20+ members, with paid interns mentoring apprentices enrolled for course credit in the Student Intern Training Program. – Ithaca College Natural Lands website, 2014



Students learn to identify sugar maple trees at Ithaca College Natural Lands reserve. Photo: Ithaca College

The 365-acre South Hill East reserve provides an easily accessed teaching and research site (and popular place for outdoor recreation), and is the home for a student-run, non-timber forest management initiative yielding products including maple syrup, mushrooms, and honey that are sold on campus and in local restaurants. The 67-acre South Hill West reserve also supports teaching and research. Both places feature many native woody species including American crabapple, pitch pine, black chokeberry, scarlet oak, swamp white oak, and dozens of species of wildflowers, sedges, and ferns. Totaling 432 acres, these two properties are a significant part of the overall 668-acre campus.

"South Hill is an important piece of local habitat for wildlife, and we have found numerous ways to coexist with our resident fauna while also satisfying our primary educational mission."

 Jacob Brenner, Assistant Professor, Environmental Studies and Sciences, and Faculty Manager of Ithaca College Natural Lands

In 2009, the Volunteer Stewards Program was established to monitor activities at the South Hill Area East and West reserves. Student, faculty, and staff stewards, numbering between 20 and 40 each semester, choose a segment along the more than five miles of established trails on the two reserves and monitor their zone for changes, including the growth of invasive plants. In serving as the "eyes and ears" of the ICNL management staff, the stewards benefit from learning the natural history and ecology of their zone. Stewards participate in training sessions each semester on topics such as forestry, birding, and trail maintenance. They, in turn, educate others in the campus community about the ICNL system, including the plants and wildlife that call it home. To date, the Volunteer Stewards Program has played an important role in notifying the ICNL management staff and Ithaca College about important happenings in the reserves, including incidents of vandalism and illegal hunting, plant invasions, plant phenology, and wildlife behavior. Through the use of motion-sensing infrared camera traps, Spring 2014 wildlife sightings included coyotes, skunks, gray and red foxes, chipmunks, whitetail deer, and even a bobcat.



The red fox (here with kits) is expanding its range into urban areas across the U.S. Photo: Simon Drabble, 2012

# University of California, Santa Barbara<sup>76</sup> (CA)

The University of California, Santa Barbara (UCSB), campus sits on the Pacific coast and harbors a variety of habitats that are home to a great diversity of plant and animal life. Natural communities include coastal dune, salt marsh, coastal lagoon, coastal sage scrub, native grassland, and oak woodland. These little pockets add up to about 250 of the university's 1,020 acres.

UCSB is dedicated to maintaining and restoring campus natural places and educating the community about their importance. Over the past decade, 17 interpretive signs have been installed to mark these areas and to explore topics such as whale migration, vernal pools, and bioswales. Three signs highlight completion of the San Clemente Stormwater Management and Habitat Restoration Project, covering the



Interpretive sign at UCSB's San Nicolas Wetland, with Lisa Stratton, right, Director of Ecosystem Management, and student Jenna Driscoll, both from the Bren School of Environmental Science & Management. Photo: Division of Institutional Advancement, UCSB

area's natural history and highlighting one of its endangered residents, the southern tarplant, a yellow-flowered member of the daisy family. From initial concept to finished product, the signs take approximately six months to create. Funding comes in part from UCSB student fees, via the Associated Students Coastal Fund, a non-profit organization. Students play a central role in the development and installation of the interpretive signs, helping write and edit their contents with fellow students and community members. Many students also work with the UCSB's Cheadle Center for Biodiversity and Ecological Restoration on campus restoration projects. The Cheadle Center offers an introductory field skills course to instruct students on techniques and tools for working in campus natural areas. The students then are qualified to work on ecological restoration activities such as seed collecting, plant propagation, site preparation, planting, erosion control, and non-chemical weed control.

Wildlife sightings at UCSB natural areas are an everyday delight. A diverse avifauna includes such wetland birds as great blue herons, great egrets, snowy egrets, black-necked stilts, long-billed dowitchers, double crested cormorants, brown pelicans, and terns. Birds of prey—white-tailed kites, red-tailed hawks, and red-shouldered hawks—also call campus home, along with songbirds like black phoebe, common yellowthroat, and song sparrow. Reptiles include gopher snake, ringneck snake, western fence lizard, alligator lizard, and blue tailed skink. Common mammals are ground squirrels, brush rabbits, and gophers. Bobcats and coyotes are occasionally seen.

"Because UCSB is a learning institution set in such a unique coastal environment, we felt it was particularly important to interpret these remnant examples of native and restored habitats as well as our techniques for managing the impacts of development."

- Lisa Stratton, Director of Ecosystem Management, Cheadle Center for Biodiversity and Ecological Restoration

#### A Wild Place of Their Own

Students in the Fisheries & Wildlife Club<sup>77</sup> at **Michigan State University** (MI) own and manage their own special corner of MSU's campus—a 7.5-acre parcel with upland forest, meadow, prairie, and a pond. The club holds frequent stewardship workdays for such tasks as removing invasive species, improving habitat, and maintaining the public hiking trail that runs through the property. A Management Committee develops and implements management plans for the land and wildlife. In recent projects, students created cover for small mammals and installed bat houses and wood duck boxes around the seasonal pond. Members conduct wildlife surveys on the property by trapping small mammals, mist-netting songbirds, and practicing other field methods.

The F&W Club had its origins in 1950 and continues a 64-year tradition of providing opportunities for students to enrich their education with hands-on research, outdoor activities, and educational programs. The club has 50 to 70 active members and is a vibrant part of the MSU campus. One of its most popular activities is the twice-yearly River Clean-Up, in which 80-100 volunteers help maintain the stretch of the Cedar River that runs through campus. The club's 2014-15 president, Becca Blundell, notes "we not only get our club members involved, but others as well—from student organizations, fraternities, and the general MSU and East Lansing community. We recycle 99% of the trash collected, including around 70 bikes that are hauled out of the water at each event."

#### University of West Alabama<sup>78</sup> (AL)

In 2004, the University of West Alabama (UWA) initiated a restoration project to increase species richness at its remnant native Blackland or Black Belt Prairie, which occupies 70 acres on campus. Less than one percent remains of the original Blackland prairies, making them one of the state's rarest ecosytems. Prescribed burning is one of the methods used to encourage long-term prairie ecosystem development. After an initial series of annual burns, the prairie is now burned every three years, most recently in February 2014. Fire season starts after the first hard freeze and continues until early February, a time when much of the prairie community lies dormant.



Controlled burn of the Blackland prairie at the University of West Alabama. Photo: Curt Skipper

The prairie is home to many native plants including purple prairie clover, standing cypress, compass plant, and scaly blazing star. Birds seen include bluebirds, grasshopper sparrows, and northern harriers. Bluebird boxes are located throughout the prairie and counts are conducted each season.



Blackland prairie in bloom at the University of West Alabama. Photo: Doug Wymer

UWA conservation and field biology students, faculty, and staff are active participants in the restoration, helping with the burns, collecting and planting native seeds, and monitoring the study plots.

UWA, in collaboration with The Nature Conservancy, established the Black Belt Conservation Research Institute in 2007 to raise awareness of the region's prairies and to encourage protection and restoration. Research findings are being applied to restore abandoned pastureland to native prairie across western Alabama. In summer, BBCRI hosts regular prairie strolls for visitors to learn about the blooming plants and unique geology that make the Black Belt prairies possible. "UWA's prairie is the only Blackland prairie that is accessible to the public in Alabama. With trails throughout, it's a great resource for both the campus and the community," says Lee Stanton, BBCRI Director.

#### Speckled Kingsnake<sup>79</sup>

The Blackland Prairie is home to three species of kingsnakes: speckled, prairie, and eastern. Their populations are declining and survival is threatened because more than 99% of an estimated 355,000 acres of the original Black Belt prairie has been lost to agriculture and other development. But in healthy prairie remnants, the kingsnakes thrive on small rodents, bird eggs, lizards, and other prey.



Speckled kingsnake Photo: USFWS

#### University of South Florida<sup>80</sup> (FL)

Situated across a road from the main campus in Tampa, the Forest Preserve at the University of South Florida offers 500 acres of wild lands for study and recreation. The preserve harbors a variety of native animals and plants, many of which are rare or fire-dependent. The site consists of dry sandhill and wetland ecosystems, which are used by students in a dozen different courses including plant ecology, hydrology, population biology, archeology, and herpetology.

In a typical year, some 15-20 undergraduate students also gain field experience in unstructured coursework research at the preserve. Past topics included gene flow and speciation in Liatris (blazing star) and competition between plants and animals. Field research by graduate students has led to many theses and dissertations, with ongoing projects focused on the effects of controlled burns and on threats to the gopher tortoise. Community wildflower walks and an annual Christmas Bird Count are held at the preserve.



Trees, ferns and wild iris (in bloom) in one of the wetlands in the Forest Preserve at the University of South Florida. Photo: Anne C. Schmidt

Lists of plants and the resident and migratory animals found in the preserve are available online. Here is a wildlife sample: Florida softshell turtle, pine woods tree frog, Florida crowned snake, southeastern pocket gopher, river otter, southern flying squirrel, swallow-tailed kite, prothonotary warbler, redshouldered hawk, and Carolina wren. The preserve shares a border with Lettuce Lake County Park, where more than 150 species of birds have been spotted. And safeguarding the area for future generations of students, the USF Master Plan stipulates that the Forest Preserve be protected from development.

# Documenting and Sharing "The Wild" on Campus

Although many colleges and universities protect their natural and wild places, it is hard to find readily available lists of the resident and migratory birds, mammals, plants, and other wild species observed in those areas. In NWF's view, keeping such lists—and posting them online—is one of the best ways to publically acknowledge the value and importance of the non-human denizens of campus and to make the information widely accessible.

Such lists are posted for species at the Lakeshore Nature Preserve at the **University of Wisconsin-Madison**<sup>81</sup> (WI). The Preserve is made up of several natural areas which collectively cover 300 acres within UW's 900-acre total. Diverse habitats include forests, fields, a restored prairie, marshes, and four miles of Lake Mendota shoreline. Both the UW Preserve and the Friends of the Lakeshore Nature Preserve organization maintain websites with many lists of the preserve's mammals, birds, amphibians, insects, wildflowers, and trees.

The most detailed information is on birds. During more than 25 years of observation, 255 species have been seen, with around 70 species confirmed nesting there. The latest breeding bird survey was conducted in 2013-14 by Roma Lenahan, a Friends volunteer, with the number of nesting species close to the total found in her previous 2000-02 study. Some of the lists of species in the preserve have been made by UW students, which is a great way for them to make important contributions to the campus knowledge base. Other recent wildlife sightings in the developed parts of the campus include a den of red foxes and a pair of red-tailed hawks which nested on a building. A "hawk-cam" on the nest allowed viewers to

watch the hatching, growth and antics of the pair of nestlings.



An adult barred owl – an uncommon resident in urban Madison – perches near its nest in 2014 in the Lakeshore Nature Preserve at the University of Wisconsin-Madison. Photo: Arlene Koziol



# **3A** STORMWATER MITIGATION STRATEGIES THAT PROVIDE WILDLIFE HABITAT

Over time, demand for growth has led most colleges and universities to turn to their parcels of undeveloped land, replacing them with buildings, sidewalks, parking lots, and other structures with impervious surfaces. Managing runoff from snowmelt and storms is an essential task at these and all campus properties. The aim in most places is to route runoff to the nearest drainage feature, channeling it away as quickly as possible. But water is essential to life, and campus landscape designs and features that slow and capture rainwater are providing important refuges for wildlife.

Not surprisingly, catchment areas, including bioswales, that retain runoff and support native plants adapted to wetland conditions attract the widest range of species. A bioswale was one of several components of a rainfall mitigation strategy at the Charles David Keeling Apartments on the **University of California, San Diego**<sup>82</sup> (CA) campus. Earning a 2012 award for innovative landscape design, the Keeling Apartments—named after the first scientist to measure the steady rise of CO<sub>2</sub> in the atmosphere, now called the Keeling Curve—the bioswale receives and filters drainage from the building's green roof.

Another popular approach to enhancing rainwater infiltration is to create rain gardens, typically set in artificial depressions in the ground. These can be a few to dozens of yards across, receiving runoff directed from roofs or paved surfaces. Layers of sand or gravel underlie the sites, with soil and water-tolerant plants on top. The layers of media and the plants filter out sediments and pollutants, allowing water to percolate slowly into the groundwater or nearby surface waters. A rain garden installed in 2011 at **Raritan Valley Community College**<sup>83</sup> (NJ) helped the college earn "River-Friendly" recognition. Located at the south entrance to campus, the garden is filled with native plants that help slow down and filter runoff before it enters the Raritan River. It is now one of the featured stops on RVCC's campus Green Tour.

Launching new practices to mitigate runoff doesn't always come easy, notes David Wilber, a landscape architect at **Michigan State University**<sup>84</sup> (MI). Bioswales, rain gardens, low-mow turf, and wildflower meadows, when allowed to go "natural," look very different than traditionally manicured landscapes. They tend to draw criticism, especially if not understood, so managing for invasives and educating the public through signage can help. "Sometimes we design a new landscape and it doesn't thrive as planned, so we are constantly learning and trying new ways to develop MSU's landscape to benefit wildlife, the environment and safety for campus users," says Wilber.

#### **FEATURED CAMPUSES**

#### Georgia Southern University<sup>85</sup> (GA)

To help cut stormwater runoff on campus, Georgia Southern has installed several bioswales designed to trap particulates and pollutants that otherwise would flow into nearby surface waters. One bioswale site (see photo) was formerly a centrallylocated greenspace that had been reduced to less than an acre by campus growth. Once part of an extensive wetland system, it had become surrounded by impervious-surface development, including a 300-car parking lot and a large campus housing development. The site received significant stormwater runoff from the encroaching developments.

This low-lying area had plagued the campus grounds crew for years. Maintained as a lawn and grassy swale, the site was nearly impossible to mow due to significant stormwater discharges and a high water table. Not only was the site too wet to maintain much of the time, it was allowing contaminants and oily water from parking lot runoff to flow freely into the campus wetland system.

Working as a team, campus faculty, staff, and student volunteers came together in 2011 to convert the grassy field into a living bio-filtration system. The new bioswale intercepts runoff through a series of carefully placed check dams and is planted with many native species that can tolerate a range of wet to dry conditions. It slows down contaminated runoff

and allows the vegetation to filter out impurities as the water drifts downstream. In addition to scrubbing stormwater, the bioswale also has created new habitat for wildlife. Recent sightings include many butterflies, songbirds, herons, and small aquatic life.

Native vegetation in the bioswale at Georgia Southern University. Photo: Lissa Legge



#### Northampton Community College<sup>86</sup> (PA)

In 2011, then-undergraduate Michael MacDonald, a NWF Campus Ecology Fellow, led a project to research and install a bioswale designed to filter and capture parking lot runoff at the Northampton Community College campus in Bethlehem. Besides filtering polluted runoff, the system collects and provides a summer water source for the East 40 Community Garden on the edge of campus. The benefits of the system include a decreased amount of untreated runoff that enters the local watershed and an increase in habitat for wildlife on campus.

The project was a joint effort between Northampton and civil and environmental engineering students at nearby **Lafayette College** (PA). Assays were performed on NCC parking lot surface runoff samples, testing them for hydrocarbons, coliform bacteria, lead, copper, and other heavy metals. Follow-up tests showed that the filtration system cut pollutants dramatically, putting the water below EPA thresholds for toxicity.

The bioswale works like this: Storm runoff is diverted from the parking lot retention basin to the nine-foot by nine-foot site. The contaminated water seeps through the first phase of filtration, a ten-inch layer of wood mulch that binds with hydrocarbons and grease. The second phase of filtration is an engineered soil mix that uses negatively charged clay particles to bind to heavy metals like lead and cadmium. This 36-inch deep layer of soil sits above a reservoir made up of plastic water tank units, and the filtered water seeps into the tanks through a porous fabric. The water is then pumped to two above-ground 1,500-gallon storage cisterns at the East 40 garden where it is used during dry spells. A solar electric panel system at the garden powers the pumps.

"A lot of very dedicated people worked with me to design and construct the project. And now that I'm pursuing Environmental Studies at UC Santa Cruz, the experience I gained building the bioswale is all the more relevant, considering the current crisis state of the drought on the west coast."

– Michael MacDonald, Graduate student, University of California, Santa Cruz



Adding the engineered soil layer to the bioswale at Northampton Community College. Photo: Michael MacDonald

The surface of the bioswale was planted with native plants that tolerate soaking during rainy times but can withstand drier periods. Cattails, sedges, bulrushes, and other natives were used for their known ability to absorb pollutants. Since 2011, the bioswale site and area around it have grown over and serve as habitat for many kinds of wildlife. In spring when the area is flooded, frogs breed in this transitional wetland. A groundhog burrow was located not far from the swale, and it is common to see red-winged blackbirds, Canada geese, mallards, deer, rabbits, foxes, and others stopping for shelter or a drink.



Mallard ducks (male on left, female on right) are common throughout the U.S. Photo: Caroline Lambert



## Portland State University<sup>87</sup> (OR)

Located west of the mountains of the Cascade Range and 60 miles from the Pacific, Portland State University gets its fair share of yearly rainfall. Stormwater management is thus especially important on campus. The 49-acre downtown urban campus lacks streams, wetlands, or other natural areas. Excluding the South Park Avenue city greenway that bisects the campus, 90% of PSU's land is covered by impervious surfaces. In 2005, a Stormwater Management Plan was created to improve and guide sustainable stormwater goals and practices. It calls for an annual review by the landscaping supervisor and Sustainability Office to implement updates and changes to the plan.



Students studying on the green "Eco Roof" at Portland State's Native American Student and Community Center. Photo: Portland State University

Over the years, PSU has incorporated sustainable design into new and remodeled infrastructure and landscape projects. For example, rainwater harvesting on Epler Hall conserves drinking water by capturing and using rainwater for irrigation and toilet flushing. Stormwater-fed planters on campus slow runoff and filter pollutants before the water enters the watershed. Pervious pavement in a number of locations decreases erosion, reduces pollutants, and helps recharge the groundwater. Two bioswales use plants to filter pollutants from runoff. Several green roofs on campus buildings help to extend roof lifespans, reduce stormwater runoff, and provide additional greenspace and habitat for wildlife and pollinators. A campus/community garden and native plant garden also help filter stormwater runoff and provide added habitat.



A bio-retention swale filters surface runoff from Lot 81 at West Virginia University. Photo: WVU MS4 Program, 2014

#### West Virginia University<sup>88</sup> (WV)

Located in hilly Morgantown, West Virginia University has a strong history of stormwater mitigation practices on campus. In coordination with the West Virginia Department of Environmental Protection, WVU is implementing a U.S. EPA requirement known as the Municipal Separate Storm Sewer Systems to reduce runoff into surface waters.

Highlights of WVU's stormwater efforts include traditional detention ponds, underground detention systems, three rain gardens, and two green roofs—all of which help reduce runoff and flooding. The university also manages a regional stormwater facility located at the Erickson Alumni Center to address flooding in Popenoe Run and the Suncrest neighborhood. The campus has built approximately 20 new bio-retention swales (for underground stormwater infiltration) and plans to install four to six more in conjunction with new building projects. WVU's Environmental Health and Safety (EHS) department has amended the university's design guidelines and construction standards to ensure that low-impact building techniques and stormwater management efforts are always incorporated.

EHS has partnered with WVU's WECAN Sustainability Program to involve and educate the campus community on the importance of stormwater mitigation practices. At events like Earth Day and Campus Sustainability Awareness Week, students and employees participate in events such as tree plantings and litter clean-ups, which help mitigate runoff. WECAN provides student internships in several sustainability focus areas and welcomes students who wish to research water conservation methods. In 2013, EHS was awarded an Environmental Excellence Award for its stormwater initiatives from the West Virginia Department of Environmental Protection.

# **3B** NWF CERTIFIED WILDLIFE HABITATS

More than 180 colleges and universities in the U.S. have been certified under the NWF Certified Wildlife Habitat (CWH) program. Institutions that meet the criteria (see box) are recognized by a plaque that can be posted prominently on campus. And while CWH designation is a worthy goal for any school, it should be considered only one step in a long-term commitment to maintain and expand productive, green places on campus for wildlife.

At the urban campus of the **University of Memphis**<sup>89</sup> (TN), landscaping decisions have long provided wildlife-friendly settings for native birds and mammals. Sightings include red-tailed hawks, gray squirrels, flying squirrels, chipmunks, raccoons, red foxes, and coyotes. The U of M sustainability plan calls for an ongoing shift to native trees, shrubs, and other plantings in campus landscaping. Thanks to these efforts, the campus was designated a NWF Certified Wildlife Habitat in 2012. As noted by former university horticulturalist Joellen Dimond in a press release, "Students come here for academics, but the university also delivers experiences in nature through courses that will stay with them ... for many years." Another member of the campus CWH group, **Warren Wilson College**<sup>90</sup> (NC), was certified in February 2015.



Raccoons live nearly everywhere, but being mostly nocturnal they are not often seen. Photo: Charles Callahan



#### National Wildlife Federation's Certified Wildlife Habitat Program<sup>91</sup>

NWF's Certified Wildlife Habitat program has been helping individuals and organizations garden for wildlife since 1973. The program engages homeowners, businesses, schools, churches, parks, and other institutions that want to make their communities more wildlife friendly. Currently there are more than 190,000 certified habitats nationwide. Wildlife habitats are important to year-round residents as well

as species that pass through during migration, including a number of birds and butterflies. Each habitat is unique for both its beauty and function. To qualify for certification, a property must provide four key elements of habitat and implement sustainable practices.

**Food:** Native plants, in particular, provide wildlife with leaves, seeds, nectar, and other food essentials. Feeders can supplement natural food sources.

Water: All animals need water to survive and some need it for bathing or breeding as well.

Cover: Wildlife need places to find shelter from heat, harsh weather, and predators.

Places to raise young: All species need appropriate places for bearing and raising young.

**Sustainable gardening practices:** Soil and water conservation, controlling invasive exotic species and eliminating or reducing chemical use.

# FEATURED CAMPUSES

# Doane College<sup>92</sup> (NE)

In March 2009, Doane College's entire campus in Crete was recognized for its beauty and attention to native species when it became a NWF Certified Wildlife Habitat. NWF honored the 300-acre, 137-year-old campus for providing a variety of wildlife havens, including its own lake and small woodlands. Wilder parts of the campus include ponds, a natural spring, prairie areas, wetlands, and nature trails. Doane's student-led Wildlife and Conservation Organization (WACO) took the initiative and applied for NWF certification, demonstrating that the campus met the criteria of providing food, water, cover for wildlife, and places to raise young.

The college is home to more than 160 species of trees and shrubs, including 100-year-old groves of pine, ash, pin oak, and catalpa trees. Recently planted trees include native species such as maple, birch, hackberry, American yellowwood, persimmon, elm, and yellowthorn. The whole campus, in fact, is also designated the Osterhout Arbortetum, named for a long-time administrator who oversaw the planting of many of Doane's trees. Doane is also the first college to become a member of the Nebraska Statewide Arboretum and is registered with the Morton Register of Arboreta.



Student officers of WACO at Doane College gather with facilities director Brian Flesner at the Certified Wildlife Habitat plaque in 2013.

Photo: Doane Wildlife and Conservation Organization / Sarah Genrich, photographer

# Roosevelt University<sup>93</sup> (IL)

Roosevelt University has restored 8.5 acres to native tallgrass prairie at its 27-acre Schaumburg campus, northwest of Chicago. (The main campus is in downtown Chicago.) The university is halfway towards its target goal of converting all turf grass to native plants and all paved areas to permeable pavement at Schaumburg by 2023. The prairie area became a NWF Certified Wildlife Habitat in 2013.

The Schaumburg campus is located in a busy commercial complex. Thus the restored prairie provides crucial wild green space and a wildlife corridor within a heavily urbanized area. Since the transformation began in 2011, there has been a positive impact on native animal and plant species. Staff and students have observed an increase in bird and insect numbers and diversity. Rabbits, raccoons, and dragonflies are common sights. Looping through the restoration is a half-mile Prairie Walk, a trail that permits easy access.

"The prairie is a great place for the Roosevelt community to learn about and enjoy the outdoors. I especially like to take regular walks and see how it changes. We are excited to expand the idea of using the prairie as a teaching opportunity for our students. I also am very happy that it is a NWF Certified Wildlife Habitat."

- Chuck Middleton, President, Roosevelt University

Roosevelt works with local community partners to assist with different aspects of the restoration. Local Boy Scouts helped with plant identification (there are more than 25 different tree and shrub varieties) and educational labeling. The Institute of Continued Learning at Roosevelt uses it for a Master Gardener class. Members of Roosevelt's Students for Sustainability and RU Green also have assisted in the transformation.

The prairie is not only a benefit to wildlife, but it also saves money. Since conversion began three years ago, the university has avoided over \$60,000 in lawn maintenance costs. Paul Matthews, Assistant Vice President for Campus Planning and Operations, notes other ways the campus is committed to sustainability. "For example, we try to reuse everything," he said. "All food waste produced at our downtown campus is collected and turned into compost by the Resource Center and returned to our community garden adjacent to the prairie. We are working on closing the loop on resources to lessen our carbon footprint and make the connection for students that there is a better way."

#### Rockland Community College<sup>94</sup> (NY)

One of 64 campuses in the State University of New York (SUNY) system, Rockland Community College partnered with AmeriCorps and local utility United Water Company, starting in 2008, to restore a wildlife habitat adjacent to campus as an ecological and educational resource. The space is approximately 300 by 500 feet in size and features woods, a meadow, freshet stream, and an overflow pond. Restoration efforts were preceded by a natural resources inventory to identify the appropriate plants needed to enhance the habitat. A trail was built with rocks and mulch, and a site guide was developed that explains the importance of species diversity, sustainability, food webs, watershed protection, pollution prevention, and control of invasive plants. The trail has been used by classes of local K-12 school children and also by many RCC students.



Three students and a staff member stand proudly by their NWF plaque. Photo: SUNY Rockland Community College

Native plant species include flowering dogwood, tulip poplar, witch hazel, wild geranium, and purple coneflower. The site supports wildlife such as white-tailed deer, muskrats, mallards, wild turkeys, blue jays, and red-tailed hawks. In conjunction with this project, a policy was developed by the college to prohibit use of pesticides on the entire campus. "Earning NWF certification and posting the CWH signs gave significant recognition to the project," noted Susan Golz, Professor of Science.



Mallard duck guarding a nest at a water feature on the American University campus. Photo: Michael Mastrota

# American University<sup>95</sup> (DC)

Recognized in 2010 as a NWF Certified Wildlife Habitat, the American University campus in Washington, D.C. met all four criteria for certification by:

- Providing food for wildlife through berries, nectar, sap, pollen, and foliage;
- Supplying water through rain gardens and a pond;
- Creating cover in the form of wooded areas, rock walls, dense shrubs, and evergreens; and
- Providing wildlife places to raise their young in mature trees, host plants, and a water garden.

Groundskeeping practices and other green measures at the university help support wildlife and the environment. Landscaping staff, for example, manage the grounds completely organically, eliminating the need for pesticides. They use native and pest-free plants and encourage "good bugs," such as ladybugs, to keep insects that cause plant damage in check. The entire campus is a certified Arboretum and Gardens, open to the public. A walking tour with 18 stops has been developed, with downloadable audio recordings for each stop. Recognized for its efforts to promote and manage a healthy tree canopy, American has been designated a Tree Campus USA.



Student clubs, such as Ecosense and the Bee Keeping Society, have been involved in American University's community garden and pollinator gardens. Several students are hired each year to work with grounds staff where they learn sustainable landscape management practices. AU also hosts a one-day event called Campus Beautification Day, which draws 300-400 volunteers (mostly students) who spend a day working on a landscape-related beautification project. Native woody plants and perennials featured on campus include redbud, black gum, sycamore, sourwood, oakleaf hydrangea, witch hazel, turtlehead, wild iris, Jacob's ladder, and Baptisia. Wildlife sightings include white-tailed deer, red fox, red-tailed hawk, and ruby-throated hummingbird, plus many songbirds, bees, and other insects.

#### Students at UCLA Conduct Research on NWF's Certified Wildlife Habitat Program

Do NWF's Certified Wildlife Habitats make a difference? That's the question seven seniors in an environmental science practicum at the **University of California, Los Angeles**<sup>96</sup> (CA), wanted to find out. In 2014, they worked with NWF to determine the value of the CWH program to homeowners in California. Their ultimate aim was to find ways to improve the program's benefits to wildlife and sustainability, and to increase public awareness of those benefits. Based on the results of surveys and CWH property assessments, the students compiled a set of findings and recommendations for NWF that can be found in their report, *Evaluating Certified Wildlife Habitats and the Minds Behind Them*.

Their research showed that NWF Certified Wildlife Habitats have around 50% more tree coverage than non-certified locations. Those extra trees help decrease surface heating, increase rainwater infiltration, curb erosion, and provide refuges for wildlife. In addition, homeowners report that about 40% of the plants in their CWH are water-conserving native species—offering an advantage during the state's extended drought. Of long-term significance was the finding that properties with CWH designation annually sequester around 217 tons of carbon more than conventional properties are able to do.

In a press release, Beth Pratt-Bergstrom, NWF's California Director, noted, "UCLA's students should be really proud. They helped improve a program that has far-reaching implications for citizen science and conservation. They are the environmental leaders of the future and their dedication really showed in how they pursued their work."

Amercian University Rain Garden Photo: Michael Mastrota