

Richardson Wildlife Foundation

ANNUAL REPORT





Juvenile Blanding's Turtle with radio transmitter

Richardson Wildlife Foundation (RWF), located in Lee County in north central Illinois, is a not-for-profit corporation dedicated to the long-term restoration of habitats and the judicious use of our natural resources. The Foundation was established in 1989 by Edward J. Richardson with an initial land donation of 250 acres and three primary goals of Habitat Restoration, Conservation Education, and Research. This area is recognized as part of the Grand Prairie Division of Illinois and was part of the historic, 30,000-acre Inlet Swamp and adjacent bluff lands. The Richardson family has funded the Foundation as it has expanded to 1,976 acres through land donations from the Richardsons and the purchase of adjacent farms.

TABLE OF CONTENTS

Mission Statement..... 3

Habitat Management.....4-27

Flora and Fauna Surveys26-37

Research and Study Projects.....38-47

Conservation Education48-51

Equipment, Property, and
Building Maintenance & Repairs.....52-55

LaFox Property Management.....56-57

Administrative Services58-59

Photo Credits 59

APPENDIX

Map of Habitat Management PracticesA- 1

Land Tract MapA-2

2021 Acreage FiguresA-3

Hunter Harvest.....A-4

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FRONT COVER PHOTOS

Clockwise from top left:
Juvenile Sandhill Crane,
Northern Cardinal, Prairie Violet,
Bumblebee nectaring on
Showy Goldenrod



New Jersey Tea - a rare seed find for our site

SEED COLLECTION

Achieving diverse restorations on a large scale in our habitat development projects is significantly more efficient and cost-effective using seed than by other methods. For that reason, collection of prairie, wetland, and woodland forb and grass seed is critical to our ability to restore and improve the habitat offered on site. To maximize the diversity of our plantings for the benefit of wildlife and habitat functionality, we try to collect as many desirable native species as possible.

Forb seed collection requires considerable time due to variation in seed maturation dates, the labor-intensive method of hand-harvesting, and the number of species and amounts we target. Many species are difficult to collect in quantity due to the spotty distribution of plants or because seed production from individual plants is low. Collecting and cleaning forb seed by hand, although time-consuming, is considerably less expensive than purchasing an equivalent amount of seed from a commercial source. An additional benefit to collecting seed on site is that using seed of our local ecotype helps to maintain the genetic integrity in our plantings and increases the conservation value of our restorations.

By hand collection, we gathered 935 pounds of seed of 261 species of native prairie, wetland, and woodland plants this year. **That number of species is a significant leap forward for us, beating our previous yearly record of 244 species. A few of the species we were particularly excited to collect were New Jersey Tea, Queen of the Prairie, and Purple Twayblade orchid.** We have been particularly focused on woodland habitat development lately, and we have continued to expand our collection of woodland wildflower seed accordingly. This is in part due to willing landowners from whom we have gratefully obtained permission to collect and/or transplant desirable native woodland species from several nearby, off-site, wooded locations, as well as from the excellent oak savanna on the Richardson property in LaFox. Additionally, we've gratefully accepted permission to collect certain species at The Nature Conservancy's Nachusa Grasslands site.

Using a modified combine, we harvested 66 pounds of Side-oats Grama and 190 pounds of Little Bluestem grass seed from collection patches we planted just three years ago. To supplement our collection, we will trade seed of some of our hand-collected forb species to native plant nurseries and other restoration agencies in exchange for species that are native to this area but are currently rare or absent from this site.



Collecting seed of Golden Alexanders



Mopping up after head firing a controlled prairie burn

PRAIRIES

Illinois is known as “the prairie state” and RWF lies within the Grand Prairie natural division of Illinois. Prior to European settlement, and the subsequent conversion of the landscape to agriculture, tallgrass prairie was the primary habitat type in our region. Any wetland, woodland, or savanna habitat would have been surrounded by and dwarfed in scale by the seas of prairie grasses, sedges, and forbs that composed the backbone of the local ecosystem. Just as there are many kinds of woodland ranging from boreal coniferous forest to bottomland hardwood, oak savanna, or thickets, and wetlands range from bogs to marshes to swamps to ponds, there are many types of prairie as well. Types of prairie are primarily determined by soil structure, hydrology, and topography and bleed together into a matrix in which delineation might be less than straightforward and even vary over time depending on climate patterns. RWF grasslands, be they remnant or restored, are primarily black soil prairie and sand prairie. Both types might range from the dryer side to the wetter and might transition across an area from one to the other or into the marshy sedge meadows associated more with our wetland habitat.

Prairie habitat represents a higher proportion of the Foundation property than any other habitat type, most of it having been restored on former row crop ground. We conduct prescribed, controlled burns, generally on a three-year rotation for established prairies and more frequently for new plantings and those with invading, undesirable woody species. This rotational approach leaves some areas unburned, protecting fire-sensitive species, providing cover for wildlife, and allowing for the greatest potential for species diversity. We had a successful 2021 burn season during which we burned 60 units totaling about 430 acres from March 9th through March 30th and got a nice head start on the spring 2022 burn plan in December when we completed 13 units totaling about 93 acres. All units were burned safely using a 4- or 5-person crew equipped with water sprayers, drip torches, Nomex clothing, and two-way radios. As a safety precaution for burning, and to allow for access to the property, 47.3 miles of firebreaks and trails were maintained via mowing during the growing season.

This year we planted 5 new prairie restorations on the Wysneinski South (7.35 ac), Martin (1 ac), Dale (2 ac), Erbes (1.5 ac), and Original (2 ac) land tracts and interseeded an existing prairie restoration on the Original Tract (5 ac). All the new plantings other than those on the Martin and Original Tracts had been farmed with row crops in prior years and therefore required little or no additional preparations before planting. The two exceptions had been dominated by invasive weeds and grasses. Before planting, these areas were treated with glyphosate multiple times for at least 2 growing seasons. The Martin planting was tilled in the autumn prior to seeding and the planting on the Original





Aphrodite Fritillary nectaring on Wild Quinine flowers

PRAIRIES (cont'd)

tract was recontoured with a bulldozer in the late summer prior to planting. We had a nice mix of soil types to work with this year: from the very dry, sandy planting on the Erbes Tract to the seasonally moist soil on the parcel we planted on the Original Tract. All of our plantings used a diverse seed mix of flowering plants, grasses, sedges, and, in some cases, shrubs. The planting on the Wysneinski South tract is part of a new contract with the USDA's Conservation Reserve Program. For that planting we used an approved seed mix, designed to provide food and nectar plants for native pollinators. This mix used 34 species of commercially available native seed at a rate of 4.5 pounds per acre, significantly lower in both categories than our typical plantings. We supplemented this mix with an additional 35 species collected on site at 17.7 pounds per acre. In our other plantings this year we used from 76 to 119 species of native seed that we collected on site in 2020, with the numbers of species included depending on the range of soil and hydrological characteristics of the planting. Our seeding rates ranged from 23 to 28 pounds of seed to the acre. In addition to new restorations, we improved an existing 5-acre section of prairie on the Original Tract—along our gravel lane and running from Prairie to Pintail Wetlands—by interseeding 100 species of prairie and sedge meadow seed at 16.5 pounds to the acre. All of our prairie restorations and interseeding this year were conducted as frost seedings over light snow cover in January. For specific locations of this year's new plantings and interseeding efforts, see our habitat map (Appendix 1) in the back of this report.

In preparation for restorations planned for future years, we have been eliminating non-native cool-season grasses and invasive weeds on many areas through multiple means. We are preparing significant areas on the Bernardin and Wysneinski South tracts by repeated herbicide application and an area on the Montavon tracts by farming row crops in areas that had previously been cool-season grasses and weeds. We will seed the area on the Bernardin tract with native prairie and sedge meadow plant species in winter of 2022. The other listed areas will require another year or more of treatment for best results.



Pull-seeder, frost seeding a new prairie restoration



Prairie Gentian



Marsh Marigold

WETLANDS

Wetlands are among the most biologically productive and diverse habitat types found in nature. They provide immense value to human well-being through their natural functions of water purification, flood control, and groundwater replenishment even before factoring in the direct and intrinsic values of wetland flora and fauna. They are also among the most imperiled habitat types. Approximately half the world's natural wetlands had been drained by the mid-1990s. On our site, any efforts to accomplish successful restoration of native habitat and provide for the needs of local populations of wildlife need to be informed by the wetland history of the property. RWF exists at the southern edge of the historic Inlet Swamp, drained over one hundred years ago, and many of our soils are "hydric" or wetland formed. Soil types, coupled with hydrology and sunlight, are what determine which native species can thrive. Replacing the 30,000-acre wetland complex that once existed here is neither feasible nor culturally possible at this point, so our approach has been to restore what are known as prairie pothole wetlands dotting our landscape and providing similar ecological functions on a smaller scale.

We record water level readings at each wetland on a monthly basis to assess fluctuations occurring throughout the year as well as across multiple years. A dry summer and winter in 2020 combined with this year's dry early spring and very dry summer months left many of our wetlands quite low or without any standing water. By October, 20 of the 42 named wetlands that we routinely survey had no standing water. Temporarily dry wetlands provide a mixed bag of results for native wildlife. For some species, fish and Muskrats for instance, it can take a heavy toll. Sometimes that aligns with our management goals for a given wetland. Most types of emergent wetland vegetation thrive when water levels are temporarily reduced. Some species require mudflats to germinate and grow. Extended drought conditions do not generally favor waterfowl migrations and this year's minimal fall flight was evidence of that. Juvenile Blanding's Turtles, which we work so hard to protect with our head-starting program, are left exposed to foraging Raccoons and other predators when water levels diminish. As a general rule, diversity of conditions leads to a diverse community of native species. There are always winners and losers in a natural system as the pendulum swings. Nature and wildlife populations are generally resilient to temporary fluctuations away from historically average conditions. As long as we don't diverge from "normal" conditions too terribly much or for a very long time, a dry spell is not likely to irreversibly damage wildlife populations on our site. That said, a normal or wet summer would be welcome next year.

Dry summer conditions provided us with the window we needed to access a low area where the Original and Wysneinski Central land tracts meet, which we have wanted to restore to wetland for some time. The surrounding uplands are composed of a sand soil. They retain moisture deep into an average summer, providing a constant lateral seep to the low ground which had previously prevented access with heavy equipment. The western portion of this low area had been ditched and channelized in the past to allow more ground to be used for agricultural purposes. This year's wetland restoration was not intended to undo that action, but was designed to work in conjunction with such a project in the future if we decide to go that route. The water that moves through this area eventually meanders to Beaver Wetland and several others, so further study of the potential hydrological effects on those downstream wetlands would be warranted.

We began the process of creating the new wetland—which we are calling Quail—with a stadia survey and analysis of the site, which we used to plan the general shape of the basin and placement of the dike. We then used a backhoe to search out and destroy the underlying drainage tile, which turned out to be a confusing and crisscrossing mix of functional, dilapidated, and repaired lines. All were destroyed or removed to prevent future water loss from the wetland. Using our largest tractor pulling an Earth Scraper, we



Installing a tilt-tube water control structure

WETLANDS (cont'd)

excavated several feet of soil from the basin and used that soil to construct the dike and raise an access trail on the northwest end. We graded and shaped the dike with our bulldozer and installed an 8" PVC tilt-tube control structure to allow water outflow and control of depth. If water supply temporarily exceeds control capacity, the emergency spillway that we built into the north end of the dike will accommodate that temporary overflow. We used a Hickenbottom Riser and Blind T connection on the interior portion of the control structure. The excess water that leaves the control tube on the west side of Quail Wetland will travel overland through low ground and several small pools that we shaped with the bulldozer before the water finds its way into the channelized waterway that will take it north. On that waterway, we replaced an undermined smooth steel culvert with a longer corrugated pipe that will provide a better and longer-lasting crossing. Following completion of the dike and trail improvements, we seeded with Winter Wheat and Timothy Grass to prevent erosion. The basins, shorelines, dikes, and surrounding area will be planted with native wetland plants, prairie grasses, and forbs before spring of 2022. Even in a summer as dry as this one, pools formed in the basin as soon as it was excavated and lasted through the fall. It will be interesting to see what kind of staying power this wetland will have following a full season of water retention.

In the late summer we made repairs to our wetlands as part of an ongoing maintenance program. Visual searches were made for Muskrat tunneling damage, and repairs were made where needed. With backhoe, skid steer, and bulldozer, we made the needed dike repairs at Prairie, Hidden, Bobcat, Turtle, and Arrowhead Wetlands.

Over the winter we seeded diverse mixes of native wetland plants, grasses, sedges, shrubs, and forbs into and around the Oak Wetlands which we constructed in 2020 on the Bauer tract, as well as in the sizeable areas of Widgeon North and Prairie Slough Wetlands that we rehabbed last year. These areas combined for about 9 acres, which we seeded with 283 pounds of seed of 122 species. We also made a special project of interseeding Cardinal Flower, a wetland plant that is rare on our site, into scattered pockets of appropriate wetland habitat on the Wysneinski North, Wysneinski Central, Dale, Bauer, Original, and Mellot Tracts.



Emergent wetland vegetation:
Common Water Plantain and Smartweed



Fragrant Sumac

WOODLANDS

Woodland habitat at RWF can be boiled down to 3 categories of timber stands: mixed timber which predate the inception of the Foundation (“Existing Timber” on our map), hardwoods planted by RWF (majority Black and Bur Oak), and oaks planted with Red and White Pines by RWF. For each type of timber stand, our intent is to develop healthy oak savanna and woodland communities with a diverse, native understory. This is by its nature a slow process, but the Foundation has now been working on our woodland habitat for over 30 years. Our wooded habitat has come a long way over that time, showcasing the results of those many years of growth, bare-root and potted tree and shrub planting, selective cutting, invasive species control, protection of priority seedlings, and seeding of native understory plants. There remains plenty of work to do, but it is rewarding to see the returns on the investment of effort and resources when we evaluate our woods.

Most of our existing mixed timber stands are the result of natural succession following the abandonment of agricultural crop fields or pastures many decades ago. Some were planted with various pines 50+ years ago. Our management strategies for these woodlands are based upon individual assessments of the quality and species composition of each stand. Many contain a majority of non-native or undesired tree species. Our goal for most of the existing woodlands is to increase the proportion of oaks and other beneficial native deciduous trees to shift these areas into healthy, self-sustaining woodlands and savannas. Implementing this goal includes the removal of non-native and detrimental species; protecting existing, desirable saplings from deer damage; and improving understory communities of shrubs, small trees, woodland wildflowers, savanna forbs, sedges, and grasses.



Thinning pines for oak release



Planting potted oaks

WOODLANDS (cont'd)

This spring we conducted the first prescribed burn on the creek bottom woods along Brooklyn Creek on the south end of the site. We conducted the burn in conjunction with prescribed fire treatments to the adjacent prairie habitat. Fire is an essential aspect of savanna and oak woodland ecology. **This burn, coupled with previous and subsequent management actions reducing undesirable and invasive trees, is part of a multi-year plan to reshape the canopy and understory along the creek to a more natural representation of a bottomland oak savanna.** We hope to burn the area again this coming spring, continue to reduce unwanted woody and herbaceous vegetation, then interseed quality forbs and grasses, and plant native oaks, bottomland hardwoods and shrubs soon. There are currently few or no oaks growing in this area, but following the introduction of trees and shrubs, this unit will be removed from our burn plans for at least 15 years or as long as it takes for the oaks to grow to a size that would tolerate fire.

We concentrate the bulk of the mechanical aspect of our forestry management in the winter, when frozen ground can support heavy equipment without damaging roots or significantly disturbing the soil. Despite a late ground freeze on the front half of the winter and deep snow in the back half, we were able to conduct pine-thinning operations on almost 20 acres in two tree plantings on the Martin tract. Thinning these pines releases the adjacent oak trees and allows additional light and nutrients to the understory level, preventing “shade deserts”—as dense pine stands are sometimes called—from forming. The reduction in competition from mature pines fosters growth of forbs, grasses, shrubs, and oak regeneration, providing cover and food resources to ground-dwelling wildlife. Pines that remain will retain their lower limbs, rather than losing them as the closed canopy grows ever higher. Following our timber work, we seeded these areas with over 150 native woodland and savanna plant species at a rate of about 17 pounds of seed to the acre.

This year we began planting 18.4 acres on the Wysneinski South Tract that we have enrolled in the USDA's Conservation Reserve Native Hardwoods Program. In the spring we used a soil finisher to prep and level the ground and planted a base of Timothy grass. Twice during the summer months we treated the area with 2,4-D, an herbicide that kills broadleaf weeds. **In November we planted the first half (~9 acres south and east of Harrier Wetland) with 360 oak trees and 40 shrubs. Species included Bur Oak (83), Black Oak (70), White Oak (37), Swamp White Oak (65), Northern Red Oak (65), Pin Oak (40), Nannyberry (20), and Hazelnuts (20).** Each tree was equipped with Earthmats to reduce desiccation and competition, as well as wire baskets with rebar stakes to protect from browse and rubbing by deer. This winter we will seed the area with native woodland and savanna plant species, and next spring we hope to introduce several other tree and shrub species using bare-root stock.

We conducted two smaller scale timber projects in the fall of this year. We conducted a targeted oak release project on the Bernardin tract by girdling and treating the trunks of a small number of pines that were impeding the growth and health of more-desired oaks. We also removed a section of a row of pines on the Bauer tract using the Bobcat and forestry cutter attachment. This action will not only free the adjacent oaks from competition with the pines, it will allow us to construct a firebreak and conduct our first prescribed burn on this area, which we intend to do this spring.



Taking advantage of low water levels to treat invasives on wetland islands

INVASIVE SPECIES MANAGEMENT

Suppression of invasive species continues to be a major portion of our habitat work and is an ongoing challenge on this site, as it is on the broader landscape. Even as we continue to make great progress in reducing invasive plants, we find that it requires an immense amount of effort to hold ground against reinvasion and that vigilance is required against invasions by additional exotic species.

Recently we have been finding more and more invasions of Oriental Bittersweet, a somewhat similar but far more aggressive plant to the native American Bittersweet. This vine is occasionally used in landscaping but frequently escapes to natural areas with the help of birds that eat its berries. This year we found and eliminated Oriental Bittersweet plants on the Bernardin, Wysneinski Central, Erbes, and Original tracts.

Reed Canarygrass poses a greater threat to the vegetative integrity of our wetlands than any other current factor. Many of our wetlands and waterways require periodic management actions to prevent Reed Canarygrass takeover. We continued the ongoing program of treating this invasive species at several wetlands as well as several areas on more upland locations and mowed to prevent seeding in other areas. Several areas on the Bernardin and Original tracts were treated twice with Glyphosate during the growing season, and another area on the Original tract has been tilled and temporarily converted to a food plot in a multi-year treatment strategy designed to eliminate Reed Canarygrass. **This year we also leaned into a strategy of using Clethodim, an herbicide that targets grasses but does not harm broadleaf plants or sedges.** While this herbicide may not be as effective per treatment at harming perennial grasses as Glyphosate is, the selectivity of Clethodim allows us to use it in areas in which the collateral damage to native species would be too severe to justify a broad-spectrum treatment. Following treatments with Clethodim, the unharmed sedges and broadleaf plants can continue to thrive and compete with the weakened invasive grass. We hope that more frequent use of this tool and refining our approach with it over time will help us prevent Reed Canary from taking over otherwise healthy plant communities and forming monocultures.

Garlic Mustard is an invasive, herbaceous, biennial plant that can dominate at ground level in woodlands, edging out native woodland wildflowers and the fauna which depend on them. Our control efforts this year included applications of 3% solutions of Glyphosate, hand-pulling of plants before they seeded, and a small amount of controlled burning. We strategically targeted known patches of Garlic Mustard in woodlots on the Erbes, Jeanblanc, Original, Wysneinski Central, and Mellot tracts. To avoid damage to valuable native spring wildflowers on the Bauer tract, we hand-pulled Garlic Mustard in the timber west of Meridian Road. Treatment of the original colonization sites depletes the seed bank, but it is a long, slow battle since plants produce copious amounts of seed, and research suggests that at least five years of complete suppression are required to significantly deplete the seed bank. Seed is also dispersed long distances on the hooves, feet, and fur of animals. Despite our efforts to kill plants before seed production occurs, complete coverage and surveillance of the property is not possible, and we are subject to constant invasions from off-site seed sources. The only attainable goal for Garlic Mustard on this site is to control and limit the population rather than aim for complete eradication.

Invasions of prairie plantings, other grasslands, and tree plantings by Canada, Bull, and Musk Thistles and White and Yellow Sweetclover are a periodic problem. Canada Thistle is an aggressive perennial invasive which tends to thrive in disturbed habitat or the early stages of habitat restoration. In many cases we target invasions in our prairies on foot with backpack sprayers to prevent damage to non-target plants or mow Canada Thistles during the growing season prior to the flowering stage to prevent



Japanese Beetle eating apple leaf

INVASIVE SPECIES MANAGEMENT (cont'd)

seed development. We have found our best results in recent years have come from controlling seed production of Canada Thistles, chemically treating the most severe invasions in the spring, mitigating sources of disturbance, and interseeding native species to outcompete the thistle over time. Bull and Musk Thistles and White and Yellow Sweetclover are all biennial species (live two years, produce seed in year two, then die). For this reason, it is possible to limit seed production through repeated mowing, allowing time and competition to diminish the population. This has been a focus of our strategy for several years and has been working well. Bush Honeysuckle, Autumn Olive, and Common Buckthorn are all invasive shrubs that can dominate in both woodland and open canopy habitat. By outcompeting seedlings of native species, which local herbivores often favor, they can entirely alter the character of a habitat over time. Over recent years we have made excellent progress clearing our woodlands and prairies of the adult, seed-producing individuals of these species, even as they have increased in prevalence on less-managed properties in our area. During the growing season and into the fall, we treated adult plants and seedlings of invasive shrubs with Glyphosate or Triclopyr 4 using backpack sprayers. Treatments varied from foliar spraying while the plants were actively growing to cut stump or basal bark treatments later in the fall. Keeping up with ongoing regrowth of seedlings and new invasions in these many acres is time-consuming and will be required indefinitely as we work through the invasive seed banks, but they are critical to maintaining the progress we've made and will help prevent further spread of invasives.

Although it is a native species, Sandbar Willow is an aggressive invader of any moist habitat, particularly capable of diminishing the diversity and quality of wet prairie and sedge meadow. Periodic mowing of the suckering stems of this clonally growing plant can stop or reverse its outward spread. Targeted herbicide treatments can be effective but often cause damage to the surrounding native species. We took advantage of the dry summer conditions this year to mow large areas of willows earlier in the summer than would normally be possible, allowing grasses and sedges to regrow before fall on the Wysniewski Central, Wysniewski North, Bauer, Montavon, and Original tracts. Moist spring conditions often prevent fire from penetrating into willow thickets in low ground.

This year's dry conditions allowed us to successfully target willow invasions using fall prescribed burns in several units on the Wysniewski North tract.

We continue to become more effective and efficient at combatting invasive species as we refine our techniques. We monitor the scientific literature and maintain dialogue with colleagues to learn new methods and treatment options. We research and maintain vigilance against invasions of known problem species that have not yet become established at RWF. We have made outstanding progress controlling or suppressing many of these invasive species, and our habitat on site is much the better for it.

DISEASE AND PEST CONTROL MANAGEMENT

Sphaeropsis, or Tip Blight, is a fungal infection that affects many of the older Red Pines on this site. A number of trees needed to be removed this year, though fewer than in other recent years. In an attempt to control the spread of this blight in Red Pines, we treat trees of high aesthetic value with a foliar spray of the fungicide Topsin in May and June. We cut, removed, and burned Jack, Red, and Scotch Pines killed by Tip Blight, weather extremes, or Pinewood Nematode.

We maintained fruit trees with annual pruning and by following a recommended pest control program from Stark Brothers Nursery. We controlled insect pests, blight, and Cedar Apple Rust with one application of a dormant-oil spray and periodic applications of Home Orchard Spray and Ferbam. Apple production was generally good this year, however several of our trees are becoming less productive with age. The two pear trees produced a strong crop but fruit was fairly small. Pest control measures were effective.



Good weed control in soybean field

FOOD PLOTS / AGRICULTURE PLANTINGS

We maintain wildlife food plots of corn, winter wheat, sunflowers, soybeans, oats, Imperial Whitetail Clover, other perennial forages, and Brassica to complement our native habitat in meeting the food requirements of wildlife. We planted 5 new combination Imperial Whitetail Clover and chicory patches (~2.75 ac), 2 in spring, 3 in the late summer. The summer plantings were seeded with annual Brassica as a nurse crop to add immediate wildlife value and protect seedlings of the perennials from early browse. Last year we seeded perennial forage crops with our Brassica and in spite of dry growing conditions last fall and this summer, the perennials performed well and were very attractive to wildlife. Hopefully after 2 or more seasons, the pest cycle that limited Brassica production will have been broken and we can reintroduce that crop to the rotation in these spots. We planted Liberty herbicide-tolerant corn and soybeans and treated with that—once on corn, twice on soybeans—to help combat Glyphosate-resistant Water Hemp weeds.

Final acreage figures for all wildlife food plots included twenty-two fields of corn totaling 54.7 acres, twenty-three fields of soybeans totaling 57.6 acres, one field of sunflowers totaling 3.2 acres, twenty-eight fields of Imperial Whitetail Clover totaling 15.8 acres, and thirty-three fields of mixed perennial forages totaling ~4 acres. Acreages are measured using GPS and mapping software and reported to the Farm Service Agency for crop certification.

We applied 100 pounds per acre each of DAP and potash to all row crop, perennial forage, and clover fields. We applied 32% Nitrogen on the corn and sunflower fields in the growing season. We used Verdict, Glyphosate, and Sotrion for weed control on all corn acreage and Verdict, Liberty, and Secure on soybeans. We regularly mowed Imperial Whitetail Clover and Chicory for weed control and sprayed Clethodim for control of grasses. Weed control on corn acres was good, better than average on sunflowers, and good on soybeans where plants were able to canopy. Where deer browse prevented beans from developing canopy, herbicide-resistant Water Hemp continued to germinate and grow following treatment. No stunting of soybeans was observed following herbicide treatment. As with any program at RWF, we continue to research potential methods to determine if there is a more effective way to manage row crops for production and wildlife use.



Combining a portion of corn food plots



Treating concentrated plankton algae and cyanobacteria

MAIN LAKE

Our management goals for Main Lake include promoting healthy populations of game fish for recreational fishing opportunities. In order to minimize encumbrances to fishing, we selectively treat the pond with a number of products to reduce algae and aquatic plant growth. To suppress growth of both plants and algae by reducing the available light in their required photo-spectrum, we applied a total of 35 gallons of Aquashade blue pond dye in periodic treatments from April to August. For control of rooted aquatic vegetation, we treated the lake with 5 gallons of Aquathol K in one treatment and 10 gallons of Reward in two treatments. To control algae, we spread copper sulfate crystals across the bottom of the lake in three treatments totaling 400 pounds in March, April, and June, and we made 5 treatments of Cutrine and/or Clearigate between April and October. We used a total of 21.25 gallons of Cutrine Ultra, 5 gallons of Clearigate, and 9.25 gallons of Aquaprep. There was one significant bloom of planktonic algae with occasional blooms of cyanobacteria that lasted about a month during the heat of the summer, but it remained manageable and did not cause any observable issues for fish or aquatic life. When plankton algae and cyanobacteria were concentrated in one end of the lake or another by wind action, we spot-treated several times with Phycomycin using a total of 150 pounds. We continued to achieve good control of *Pithophora* algae—which has thicker cell walls than other forms of filamentous algae and requires greater doses of copper products to penetrate and effectively control it—by sticking with the copper sulfate treatment regime we developed last year.

We performed annual maintenance on the aeration system to help balance the diffusers and keep them operating efficiently. We retrieved all diffusers from the lake bottom, cleaned them in a muriatic acid bath, reassembled them to the plastic tubing, and repositioned them on the lake bottom. We changed filters and graphite vanes on the compressors and adjusted control valves to balance the system. We shut the system down for winter in November following turn-over of the water column and will restart it in early spring—or earlier if snowpack over ice becomes too severe during the winter.

The lake tends to lack cover for smaller fish, thus reducing the number of prey species (Bluegill in this case) reaching a size that provides good forage for the upper size classes of Largemouth Bass. To address this lack we constructed 3 cover objects made from wooden pallets, cinder blocks, and field tile and placed them on ice in February in desired locations with depths of 4–5 feet. The field tile, built into the bottom layer of the structures, is intended to offer cover to smaller fish as well as provide nesting and rearing locations for Channel Catfish.

We were able this year to achieve our management goals for aesthetics and the health of the fishery while reducing the number of algae treatments and total chemical use. Both Bluegill and Largemouth Bass spawns were productive. Fish and other aquatic populations would benefit from cover provided by emergent vegetation becoming established along a greater percentage of the lakeshore and introduction of additional physical cover structures. We will continue to try to spare the south shoreline from herbicide treatments next year and will explore possibilities for more and different types of cover objects for the lake.



Constructing cover objects for fish



Inspecting nest boxes for use

WOOD DUCK NEST SURVEY

We maintained a total of 85 nest box structures for Wood Ducks on or near wetlands and waterways across the property. Maintenance of duck boxes includes repairing structural damage, cleaning out any remains in the boxes, and putting in fresh wood shavings for nesting material. Four boxes were damaged between the February repairs and the nest survey and were unusable for nesting. Two additional boxes were flooded during the nesting season. We have three types of nesting boxes available for Wood Ducks: Ducks Unlimited plastic boxes, cedar wood boxes, and galvanized round metal cone boxes.

Forty-one percent of available boxes produced a successful nest. The table below indicates Wood Duck usage and nesting success rates at each type of nest box as well as the total for this year and our historical averages. We observed a total of 976 eggs laid this year, of which 244 had hatched (25%). That hatching rate was 1% higher than what we saw last year but the total number of eggs was slightly lower (-4%). There were a similar number of “dump nests” this year (18) but the total number of eggs laid in “dump nests” (298) was significantly lower than a year ago (535). “Dump nest” refers to nests in which female Wood Ducks (frequently more than one) will lay eggs but not incubate or care for them. This occurs both in artificial nest boxes and natural nesting cavities. The behavior is a form of nest parasitism in which females attempt to sneak their eggs into an active nest to have another female raise the resulting chicks with her own brood.

Type of Nest Box	# of Boxes	Usage by Wood Ducks		Success Rate of Nests	
		#	%	#	%
Metal Cone	4	4	100%	1	25%
Ducks Unlimited	24	19	79%	14	74%
Cedar Vertical	54	42	78%	19	45%
Total	82	65	79%	34	52%
Historical Average	N/A	N/A	85%	N/A	59%

After conducting this year’s nest box inspections, we found several boxes that were usable but in need of replacement or repairs. We will carry out the necessary maintenance on these boxes prior to the upcoming nesting season. We will also install one or more boxes on the newly constructed Oak Wetland on the Bauer tract.



Inspecting nest boxes for use

EASTERN BLUEBIRD NEST SURVEY

We inspected the forty-nine Eastern Bluebird nest boxes on site for use during the nesting season on July 7th and August 20th. Four nest boxes were unusable for birds during breeding time due to damage. Eastern Bluebird nests were observed in 20% of the remaining boxes, lower by 7% compared to last year. As in recent years, we observed several cases (3) in which House Wrens constructed nests over existing Bluebird nests. **We estimated that there were about 24 fledglings from our boxes this year, the highest total in four years despite the decrease in number of nests.** It is likely that the warmer, less-stormy spring we experienced this year and last favored Bluebirds' ability to incubate eggs relative to the several years prior. Our approximation of the number of fledglings remains a rough estimate based on egg fragments observed and other subjective factors. We are likely to continue to see significant fluctuation in Bluebird recruitment dependent upon local or regional habitat, weather patterns, competition for nesting sites (with species such as House Wrens), fluctuations in habitat structure, or other factors. As the oak trees and savannas restored on the property mature, we expect conditions to become more and more favorable for Eastern Bluebirds.

Other species that used Eastern Bluebird nest boxes this year included House Wren (26%), Tree Swallow (6%), mice (4%), ant nests (4%), European Starling (1%), and Great-Crested Flycatcher (1%). Nest boxes were found to be empty on 12% inspections. In addition to replacing and repairing aging boxes, we continue to adjust nest box placement to try to favor Bluebirds, especially over their chief competitors, House Wrens. Even so, intense competition for nesting sites may be an unavoidable effect of our woodlands reaching a shrubby stage of succession preferred by House Wrens.



Adult Eastern Bluebird



A mature Whitetail buck

WHITETAIL DEER SURVEYS

Following a protocol we established years ago, we conducted three ground censuses for Whitetail Deer early in the evenings of January 28th, February 17th, and February 24th of 2021. They were conducted from a vehicle traveling a predetermined route along gravel roads on site. Two observers recorded deer seen from the vehicle. The census route and schedule of dates are kept similar from year to year. The total numbers of deer seen for each census were 165, 165, and 136 respectively, for an average of 155 deer sighted per survey. One of the reasons we monitor ongoing trends in deer numbers is because when deer populations become excessively high, the herd, individual deer, and the quality of local habitat will suffer. This year's counts averaged for the highest in six years and were above our 28-year average. Strong fawn production in 2020 resulting from favorable spring weather accounts for the increase. Several years ago we observed that the deer herd had been reduced to below a maximum carrying capacity and that the risk of habitat damage due to excessive deer browse was low. We therefore decreased our hunting pressure and harvest goals to allow for greater recruitment into the population. **The 2021 road deer survey, in conjunction with other indicators and observations, shows us that the local deer population has increased. It is worth noting that these road survey numbers are a “noisy” dataset as they are simple observations of deer made over three days in the winter from a limited vantage point.** There are a number of variables that can skew results one way or the other despite our efforts for consistency. They are only one index of the size of the deer herd and are one of many metrics taken into consideration for devising our deer management strategy.

We use trail cameras to survey wildlife use of the property, and they are especially effective when deployed to monitor deer. A total of eighteen cameras were strategically placed across the property to gather information on the movement patterns, reproductive parameters, concentrations, and general presence of deer and other wildlife. Information collected with these cameras can be used to estimate deer recruitment rates, buck-to-doe ratios, numbers of mature bucks, and movements and patterns of deer and other wildlife with more nocturnal or secretive behavior. Among the observations gleaned from trail camera surveys in 2021 was that recruitment rates were again significantly higher than several of the years before 2020.

On March 1st we surveyed all corn and soybean food plots planted in 2020 to determine utilization by deer and other wildlife. It is important to note that these numbers refer to the food crop that was available over the winter of 2020–2021 and do not reference the crop we planted in 2021. Our surveys reflected that while summer drought conditions in 2020 did reduce yields, crop production was good. We did observe more crop damage due to early season browsing by deer than we had in several years, but this was largely restricted to ends and edges of fields. All corn fields produced ears this year (which has not always been the case). Taken as a whole, in food plots property-wide, 64% of corn stalks still had cobs attached (a 26% decrease over the previous survey but more in line with previous results), and on those, almost 0% of kernels remained on the cobs. It had been about 7 years since we had seen such high rates of utilization. Recent surveys had been showing record-high levels of grain remaining. This increase in utilization by deer and wildlife tracks with our increased deer observations during our road surveys but may have nearly as much to do with winter weather patterns. The winter had been snowless and mild until almost the middle of January, when an ice storm was followed by multiple snow events resulting in nearly 2 months of deep snow cover and a polar vortex that caused very cold temps for about a month from late January through the end of February. This pattern began to break just before our crop survey. During this cold time deer and other wildlife were compelled to eat as much and as frequently as they could to maintain body condition and withstand the cold temps. When the snow melted, we were happy to see that there was a fair amount of grain uncovered for late-winter gleaning by wildlife. In addition to corn, we left about 15% of our soybeans standing for wildlife use. Improved shatter-resistance of modern



Hand-captured fawn prior to ear tag application

WHITETAIL DEER SURVEYS (cont'd)

soybean varieties has made this crop an even more valuable food source in winter in recent years. We've found that they continue to hold beans in pods deep into winter and even into spring, above any typical depth of snow cover and readily available for wildlife browse. In recent corn surveys, we've made it a point to record information on soybeans as well. This year's survey showed the same near-total utilization of beans by wildlife as we found for corn. This was the first time in many years in which we have observed deer foraging in the winter on "hunger foods" such as Red Cedar, Arbor Vitae, or Yew shrubs in landscaping during the late winter months. Thankfully, spring weather moved in relatively swiftly and brought abundant native and food plot green browse before deer exhausted their supplies or extensively damaged habitat.

We monitor many aspects of the local deer population through cooperative efforts with hunters, who fill out a log sheet upon completion of each deer hunt. They record numerous factors and observations on deer and other wildlife, which are entered into a database by Foundation staff for analysis. This dataset helps us identify trends in population demographics that influence subsequent population numbers and give us invaluable information that strongly informs our deer management strategy. Our hunters also provide us access to sample material from harvested animals, which we collect and deliver to the Illinois Department of Natural Resources to be tested for Chronic Wasting Disease. RWF has provided the Department with the majority of samples taken from Lee County over the years. Unfortunately two of our samples, taken from mature does in 2020, tested positive for CWD. These were the first positive tests to be recorded from our site and the first from Lee County. Following the news of the positive tests, we have increased our efforts to harvest and test adult deer. **Thankfully no tests from deer harvested at or near RWF in 2021 have shown infection.** We will continue to monitor and test for the presence of this fatal disease moving forward, and its presence in our area will heavily influence our decisions as we develop our management goals for Whitetail Deer.

Foundation employees captured three Whitetail Deer fawns on the property incidental to other work, all males. We equipped the fawns with individual ear tags containing I.D. numbers, the acronym "RWF," and our office phone number. To date, we have tagged 93 deer (46 male, 46 female, and one unknown). Of these, 22 have yielded valuable post-capture information regarding local population demographics, mortality factors, and movement patterns. We have recovered ten females on site: eight harvested by hunters and two killed by vehicle collision. We have recovered five males on site: two killed by vehicle collision (both < 1 year old), one evidently predated in its first month, and two harvested (both at 4.5 yrs. old). Three males (one 1.5 yrs. and two 2.5 yrs. old) and two females (1.5 yrs. and 4.5 yrs. old) have been phoned in after being harvested off site by hunters. These deer were from < 1 mile to 25 miles from the Foundation when harvested. The data collected from this tagging program provides useful information that we use when developing our deer management strategies.



A fawn and two Wild Turkeys



A female Common Snapping Turtle has just completed egg deposition and will cover her nest

HERPETOLOGICAL SURVEY

Foundation staff surveyed reptiles and amphibians using cover boards, aquatic hoop traps, and visual and audio searches. Amphibians observed on site this year included Tiger Salamander, Western Chorus Frog, Blanchard's Cricket Frog, Grey Tree Frog, Northern Leopard Frog, Green Frog, American Bullfrog, and American Toad. Reptiles observed this year included Six-Lined Racerunner, Fox Snake, Eastern Garter Snake, Eastern Hognose Snake, Brown Snake, Painted Turtle, Common Snapping Turtle, Blanding's Turtle, and Ornate Box Turtle. No Spring Peepers, Plains Garter Snakes, Green Snakes, or Spiny Softshell Turtles were recorded this year.

As we have for several years now, we put specific effort in April and May into surveying our wetlands for Blanding's Turtles with the goals of furthering our understanding of their use of the site, identifying nesting areas, and protecting nests from egg-predators. Read more about our efforts to study and assist Blanding's and Ornate Box Turtles in the "Research and Study Projects" section of this report. While trapping for Blanding's Turtles, we also caught 20 Common Snapping Turtles and 94 Painted Turtles from eight different wetlands. Whenever possible, new turtle captures are assigned and marked with a code so that they can be identified if they are caught in the future. This provides us with valuable information on growth rates and population demography.

We have written in past years and in other parts of this report about the effects of wetland hydrology on species composition and how that, in turn, impacts wetland-breeding amphibians. Periodic drying of breeding pools reduces populations of many upper-level aquatic predators of amphibian eggs and larvae such as fish and leeches. Drying also spurs plant growth on exposed mudflats in the late summer and fall, which expands the base of the food chain for most larval amphibians. On the other hand, if wetland water levels drop quickly and early in the summer, amphibian larvae may not have time to reach and complete their metamorphoses to an adult stage capable of leaving pools. Different species have different maturation rates. Chorus Frogs, for example, mature quickly and can leave ponds as small frogs in their adult stage in early summer. Tiger Salamanders require a much longer duration and may not mature until September or later. We had a dry year this year that came on the back of a dry summer and winter of 2020. Most species of amphibians on site seemed to have productive breeding years at most of our wetlands, but there were certainly wetlands that dried remarkably early in which late-maturing amphibian species would have been impacted. Even so, we noted more than a few recently emerged Tiger Salamanders (the last to mature of our local amphibians) this fall, indicating that they successfully reproduced at some of the more persistent wetlands. As we say, diversity of habitat leads to diversity of wildlife.



Larval Tiger Salamander in late June



Two Whooping Cranes, *Grus americana*, with a Sandhill Crane, *Antigone canadensis*

WILDLIFE OBSERVATIONS

The Foundation maintains annual records of on-site wildlife observations and reproductive parameters of several species. The following are notes on selected observations.

The depth of snow and severe temperatures in January and February this year were hard on species of wildlife active at that time of year, especially non-migratory, ground-feeding birds. We infer that our populations of Bobwhite Quail and Ring-Necked Pheasant were negatively impacted, quail to a greater extent. Wild Turkeys seem to have fared better and avoided significant losses. For the individuals in those populations that withstood the harsh winter, ideal June and July weather for young chicks led to a successful reproductive year. Our efforts to control Raccoon numbers for the benefit of Blanding's Turtles likely helped many species of birds as well. Following a productive breeding season, turkeys may in fact be at an all-time high on our site. We exist on the edge of the natural range of Bobwhites, so it is not surprising to have swings in their numbers given the types of winter we are prone to have in our area. Even so, at a time in history in which there is so little appropriate quail habitat left, it is a shame to see this population knocked back by weather factors for which we can't mitigate.

Sandhill Cranes continue to breed on site. At least 3 different chicks were seen this year—low by our recent standards. This species nests on raised mounds of vegetation in wetlands, and it's possible that some nests—built at low levels following last year's droughts—flooded before eggs hatched as water levels rose in the spring.

We saw migratory flocks of Broad-Winged Hawks here in September, something we had not recorded before at RWF. One of few species of hawk to travel in such groups, we were treated on three consecutive mornings to many dozens or even hundreds of these birds, wheeling upward on thermals as the air warmed, eventually disappearing from view due to altitude and southern horizon. While we never did see them massed in trees to roost on site, we think they were overnighting in the Black Walnut-dominated woods where the Wysneinski South and Bauer tracts meet.

Migratory waterfowl—ducks and geese—used the site in average-to-low numbers during the spring migration, and for a fourth year running the fall migration was both late and low in numbers. One staff member witnessed an act of nature we hadn't recorded before when a large female Cooper's Hawk took down an adult female Wood Duck in flight near Main Lake. Cooper's Hawks are specialists at hunting birds, but an adult duck is a particularly large prey item.

We were thrilled to welcome back a pair of Whooping Cranes that spent nearly a month here in the fall using wetlands and food plots at RWF. For our conservation efforts to benefit one of North America's rarest birds is an honor. There are only a few hundred Whooping Cranes in the world, though that is considerable progress from their low point of only about 20 individuals in the 1940s. The collaborative efforts of private organizations like the International Crane Foundation and governmental agencies to bring this species back from the brink has been one of the great testaments to what can be achieved by coordinated conservation biology. Seeing and hearing this species use habitat that we have worked to restore is inspiring.

Sightings of Endangered or Threatened species included Whooping Crane, Osprey, Northern Harrier, American Bittern, Yellow-Crowned Night Heron, Black-Billed Cuckoo, Starhead Topminnow, Blanding's Turtle, and Ornate Box Turtle. Other species of interest included Aphrodite Fritillary, White Pelican, Broad-Winged Hawk, Red-Shouldered Hawk, Pied-Billed Grebe, Trumpeter Swan, Woodcock, Hooded Merganser, Bald Eagle, Eastern Screech Owl, Blanchard's Cricket Frog, Tiger Salamander, American Badger, Long-Tailed Weasel, and Short-Tailed Weasel.



Using telemetry to check on a gravid female Blanding's Turtle

RARE TURTLES RECOVERY PROJECT

Blanding's and Ornate Box Turtles are Endangered and Threatened, respectively, in Illinois and have drastically declined in number in the state and in many places across their native ranges. They are among the most imperiled full-time resident species on our site; both are primarily prairie species. Blanding's Turtles are a species evolved to exist in a prairie pothole wetland ecosystem. Ornate Box Turtles are a terrestrial species and do not have the same wetland requirements as Blanding's Turtles.

The loss of historical prairie habitat—and especially of large, unbroken blocks of prairie—has been a leading factor in the decline of both species. At RWF we have restored many acres of prairie and wetlands, which has certainly benefitted the small remaining populations of these two turtle species. Even so, our population surveys over the years have not shown the numbers of juveniles that would indicate a growing or even stable population. The most limiting factor for turtles in this region today other than habitat loss is nest and hatchling predation by mesopredators, primarily Raccoons. Raccoons are a species that benefits from and exists in larger numbers on today's agricultural landscape than they did in days before plowing and successional forest regeneration. The quality or quantity of nesting sites for Blanding's and Ornate Box Turtles at RWF may have diminished over the years as trees planted on sandy ground have matured, making conditions more appealing to Raccoons and other mesopredators. Relatively open sandy soils are preferred nesting sites for female turtles of both species.

For several years we have taken actions meant to foster a recovery of these populations on our site. In initial phases we were able to identify some nesting areas, allowing us to conduct informed habitat management practices. Later, we were able to follow two female Blanding's Turtles during their nesting forays, protect their nest and eggs from predation with wire baskets, and release 22 resultant hatchlings directly to shallow, vegetated wetland habitat following their emergence. Our recovery program took another, even more significant leap forward in 2019 when we were able to collect 39 eggs and send them to an incubation facility and from there on to a head-starting program for Blanding's Turtles. We were able to do this through a cooperative partnership with The Nature Conservancy, researchers from Northern Illinois University and the University of Illinois, the Forest Preserve districts of DuPage and Lake Counties, the Illinois Department of Natural Resources, and others. Last year we made our first release of head-started turtles, which we had collected as freshly deposited eggs the year prior. A subset of those hatchlings were followed via radio telemetry for the rest of that summer. Their survival rates were much lower than anticipated, owing almost entirely to predation by Raccoons.

We continue to refine our approach to Blanding's Turtle conservation measures into a fairly repeatable annual process. Our efforts begin in early spring, by locating any turtles that overwintered with radio telemetry transmitters affixed to their shells. Knowing where these turtles are successfully overwintering gives us valuable information, applicable to habitat management practices and the next step in our process: trapping for additional females. Starting in April or May, prior to the turtle nesting season, we deploy and monitor aquatic hoop traps and conduct visual searches in and around wetlands, with the primary goal of finding gravid (pregnant with eggs) adult female turtles. Capture rates can be frustratingly low. With few adult Blanding's Turtles and many acres of wetland habitat, the needle in the haystack analogy applies. When we capture adult females, we palpate (feel for eggs) to determine if they are gravid, take size measurements and health observations, and affix a radio transmitter to their carapace, allowing us to monitor them by triangulating the signal from their transmitter picked up by a telemetry receiver. The turtles are released at the site of their capture.



Sex	Length
Weight	Mass
Snout-vent length	Snout
Carapace length	Carapace width
Head length	Head width
Forelimb length	Forelimb girth
Hindlimb length	Hindlimb girth
Stomach contents	Notes

Collecting location and growth data from a transmittered head-started juvenile Blanding's Turtle

RARE TURTLES RECOVERY PROJECT (cont'd)

Typical nesting season is late May into late June. Beginning in mid-May we regularly locate the female turtles in evenings to determine if they remain in a wetland or are moving overland, potentially on a nesting foray. Sometimes overland movements are “false alarms” as it is common for Blanding’s Turtles to move from one pond to another. Regardless, we have learned to keep a close watch. We check her status approximately every 3 hours around the clock until she either nests or returns to a wetland. If we are able to follow a female through her nesting process, we collect the eggs, carefully store them in sealed containers with some of the sand substrate from the nest, and deliver them to our partners at the Forest Preserve District of DuPage County. There, Ecologist Dan Thompson has been kind enough to incubate our eggs along with those from his project of the same goal.

Like certain other turtles, Blanding’s Turtles exhibit Temperature-Dependent Sex Determination (TSD) rather than a genetic, chromosomal determination of sex. In this species cooler incubation temperatures lead eggs to develop into male hatchlings while warmer temperatures result in female hatchlings. This interesting aspect of their development affords us a level of control over the sex of the eggs we incubate. Because Blanding’s Turtles exhibit delayed sexual maturity (>14 years for Females, ~12 years for males) and because reproductive females are so desperately needed to foster a recovery, we generally opt to incubate each clutch at temperatures to generate a 2:1 ratio of female to male hatchlings following methods Dan has used in his own program.

After hatching and an acclimation period, the hatchlings are individually marked, and we move them to a head-start facility in Lake County where the RWF hatchlings remain active over winter in controlled, aquatic, enclosures with heat lamps and a highly nutritious turtle diet. Under these conditions they can grow far more rapidly than is possible in the wild as well as continuing their growth over winter, a time at which they would otherwise be dormant and not growing at all. Once the hatchlings achieve a target size and weight, we bring them back to the Foundation to release them into wetlands. At this size they are less vulnerable to predation from fish, birds, small mammals, and bullfrogs and therefore more likely to survive to reproductive age.

Even with the additional growth afforded to hatchlings head-started for a year, they remain at significant risk of predation by mesopredators such as Raccoons, Opossums, Mink, and Coyotes for several years. Additionally, we cannot expect to capture all female Blanding’s or Ornate Box Turtles every year nor protect all nests from predators. To address this threat to our imperiled turtle populations, we were granted a special permit from the Illinois Department of Natural Resources to trap mesopredators outside of the typical furbearer trapping season. Our goal has been to trap before and during the nesting season, primarily targeting Raccoons. After pandemic-related delays in permit issuance in 2020 derailed our plan, this year we were able to conduct our trapping program as designed. From May 10th to June 28th we deployed 46 traps, most of which were dog-proof style reach-in traps, helping us target Raccoons specifically. Traps were expertly placed and baited along Raccoon trails and checked 7 days a week. In 2021 we removed 286 Raccoons, 17 Opossums, 2 Mink, and 1 Striped Skunk. Non-target catch included 3 Eastern Cottontails, 1 Fox Squirrel, and 1 American Badger. Non-target catch were all taken in conibear traps, of which we only ran 9. In July, following our trapping sessions and as wetlands were receding enough to read animal sign on mudflats, we conducted an informal survey for Raccoon sign property wide. We found prints, scat, or other recent raccoon sign at every wetland we examined. Over the course of the summer and early autumn we observed juvenile Raccoons multiple times in person and commonly in our trail camera surveys.



A hatchling Blanding's Turtle in the Lake County head-start program

RARE TURTLES RECOVERY PROJECT (cont'd)

Following the high levels of raccoon predation we observed in the head-starts we released and tracked last year, we and our collaborating partners decided to extend the duration of the head-starting period for hatchlings from eggs we collected in 2020 to two years, rather than one. The hope here is that another year of growth under the protection of the Lake County turtle team will afford these turtles a higher level of protection against predators. Coupled with our increased mesopredator trapping efforts, we hope to find greater success in 2022 with this release.

We were able this year to capture and track 2 gravid female Blanding's Turtles. Despite locating them multiple times during evening and night daily during their nesting season, both apparently nested at an unexpected, odd hour without our detecting them. We surveyed the likely nesting areas near their wetland when it was discovered that they were no longer gravid. We did not locate their nests, but fortunately we did not see any nests in those areas that had been recently raided by raccoons. Though we couldn't protect them, we hope these natural nests and their hatchlings survived. We did collect one live hatchling in late summer that was found on site but well north of any of our previous Blanding's records. This may be a hopeful sign of an unknown adult female that is successfully nesting, perhaps due in part to our predator trapping efforts. The single hatchling was delivered to the head-start program and will be released in a future year.

Due to the difficulty and unpredictability of patrolling for multiple turtles at multiple wetlands at all hours of day and night, some of our partners have adapted their system to encourage females to lay eggs in enclosures. When nesting season approaches, researchers will periodically palpate females to determine size and calcification of the eggs inside. Once eggs start to harden, females are brought to fenced enclosures providing water, nesting substrate (sand), and protection from predators. They are then checked daily to determine if they have deposited eggs. If they have, the enclosure is searched, eggs are collected, and the incubation/head-start process begins. If females do not lay after a certain time, they can be induced to oviposit with an injection of one or more hormones that will spur nesting behavior. Our recent experience has shown us the value of this approach and we hope to emulate the technique next year. We currently have transmitters on two females. We will attempt to capture more in our spring trapping season, and we hope starting the year with more turtles and new techniques will allow us to collect more eggs next year.

At this time fewer direct interventions are possible for Ornate Box Turtles than we have implemented for Blanding's Turtles. Nest protection is more difficult for a variety of reasons. Box Turtles rarely lay more than 2 eggs while Blanding's commonly lay more than 10. It is difficult to definitively conclude whether a Box Turtle is gravid or not because of the challenges of palpating them due to their small size and ability to close their plastron on probing fingers. Box turtles are entirely terrestrial so there is no cue to look for as an indication that they are soon to nest as there is when Blanding's Turtles leave their wetland. We are currently only aware of 2 female Ornate Box Turtles on site and a male that has not been seen in several years. Currently, our best conservation approaches for this species are to create quality habitat and reduce nest predators in areas known to harbor Box Turtles.

The road to recovery for either of these turtle species will be long and difficult. The hard-earned successes and lessons we've learned to this point have been due primarily to collaboration and partnerships, as will be any future success. Discussions, planning sessions, cooperation, and mutual support from colleagues have been critical to scaling up our efforts efficiently. Across northern Illinois these turtles face many of the same threats and require the same types of interventions to remain part of the animal community on our local landscape. We are very fortunate and very grateful to have found the partnerships we have formed over the last few years, and we look forward to continuing to work together on this important effort.



Researcher Allison Earle (right) and Dr. Scott Meiners (left)

EFFECTS OF PRESCRIBED FIRE ON OAK GROWTH AND SURVIVAL

Allison Earle, a graduate student in Dr. Scott Meiners's Plant Ecology laboratory at Eastern Illinois University, began her Master's Thesis this fall. Working within our plans to conduct prescribed burns in several of our restored oak savannas in the spring of 2022, Allison is going to measure and evaluate the effects of fire on the oaks and other woody species. We look forward to seeing the results of Allison's research as this topic is one that has been only lightly explored and may have significant implications for natural land management. The following paragraphs are Allison's summary of her research.

Temperate savannas are among the most at-risk biomes because of their high rate of conversion to other land uses and low rate of protection. Oak savannas, a temperate savanna type characterized by a canopy of oaks (*Quercus spp.*), are estimated to occupy less than 1% of their historical range. Savannas have a grass-dominated, continuous herbaceous layer and a tree canopy covering between 25–50% of the land. In the absence of periodic burning, fire-sensitive shrubs and trees can become established, eventually resulting in a closed-canopy forest.

Because oak savanna restoration is a slow process, there is relatively little literature available on the practice. One restoration approach is to plant trees into a grassland. However, young oaks are more susceptible to fire than older trees. To protect the young trees, mechanical control (e.g., mowing) in place of prescribed fire may be needed for the first several years after planting. While mowing mimics some effects of prescribed fire, it is not a perfect substitution. Therefore, returning fire to the restoration is important for maintaining the desired community structure and composition.

I will be looking at oak growth and survival after the addition of prescribed fire. With this project, I am hoping to address the following research questions:

- 1) What roles do fire intensity and stem size play in oak growth and survival?
- 2) Is there a difference in response between the first and second prescribed burns?
- 3) Do different oak species respond differently to prescribed fire?

To answer these questions, I will track the responses of up to 500 planted oak trees in two management units at Richardson Wildlife Foundation. Firebreaks will divide the units and a portion of both units will be burned in spring 2022. Within each area, I will assess approximately 40 trees each of *Quercus macrocarpa* (Bur Oak), *Q. alba* (White Oak), and *Q. velutina* (Black Oak). However, differences in the plantings mean the three species are not evenly distributed across the units. Trees will be selected to represent a range of sizes and understory cover to ensure a gradient of fire severity and potential tree responses.



Bur Oak leaves and acorn

EFFECTS OF PRESCRIBED FIRE ON OAK GROWTH AND SURVIVAL (cont'd)

Prior to the burn, I will place pyrometers near the base of the oak trees to measure the surface temperature during the fire. The pyrometers are copper tags painted with 11 lacquers, which liquify at different temperatures. I will also mark the location of the tree, identify it to species, and measure its diameter at breast height (DBH). After the burn, I will measure the scorch height and the percent of the area scorched on the trees. This, in combination with the pyrometer data, will give me a measure of the intensity of the burn at the scale of each tree. To determine how fire severity affects the trees, I will measure extension growth from the year prior to the fire and the year following the fire (four stems), DBH, and plant stress. Stress will be assessed by measuring chlorophyll fluorescence. The ratio of variable to maximum fluorescence (F_v/F_m), measured with a chlorophyll fluorometer, gives an estimate of the efficiency of the photosynthetic machinery and is a general measure of stress. A decrease in the ratio indicates the plant is experiencing stress under the current environmental conditions. With this information, I can model plant responses along a gradient of fire intensity, tree size, and across species.



Pyrometer, made in the lab to record fire intensity in the field

The information gathered from this research has clear management implications. Land managers may be able to burn management units with young oaks with less concern for the fire effects if there is no difference in growth, stress, and mortality between the burned and unburned areas or an increase in growth in the burned areas. An increase in growth could occur because the fire releases nutrients or decreases competition from the herbaceous understory. In contrast, if there is a significant level of mortality or reduced growth in the burned units, and tree survival is a management goal, managers may have to delay burning until the oaks have reached a critical size, which this study should be able to determine.



Scouts enjoy a fishing day in May

EDUCATION

Whenever possible, the Wildlife Foundation hosts educational and community groups of all ages and backgrounds, fosters interest with the public in our mission and methods, and supports local education and research efforts however we can. As in any given year we oriented guests, students, and researchers to RWF, presented our museum specimens to interested groups, and provided some history and context to the Foundation: our mission and methods, successes and challenges, and how we fit into the regional conservation picture. We provided temporary housing to researchers working on site or in our area. Through our participation in the Illinois Recreational Access Program (IRAP), we provided state-administered spring and summer access to nature lovers for hiking, bird watching, and photography, as well as youth turkey hunting to help young people and first-time turkey hunters learn safe and responsible hunting techniques and gain experience with and appreciation for wildlife and the natural world.

Boy Scouts from the Sandwich, IL, troop visited the Foundation in May for an overnight camping trip and fishing on Main Lake. This troop has used the site for such activities several times over the years and this year offered to construct several Wood Duck nesting boxes to help our efforts in that department. We are happy to have their participation and interest, and we are looking forward to talking with them about waterfowl, wetland habitat, and conservation as we deploy the boxes they make.

Continuing education for staff personnel was also provided via participation in Pesticide Applicator Training Clinics and meetings with Illinois Department of Natural Resources Wildlife Biologists on the status and management of Chronic Wasting Disease in Whitetail Deer.



MUSEUM COLLECTIONS AND STUDY SPECIMENS

The Foundation maintains museum collections of plants, insects, fish, herps, and mammals for educational and research purposes. Our herbarium consists of 979 plant specimens representing 78 families, 261 genera, and 455 species matted on acid-free paper. Our seed collection includes 82 native prairie and wetland species displayed in glass vials. The insect collection exhibits thousands of pinned and labeled specimens in glass-topped drawers. Our fish collection is comprised of 185 specimens of 13 genera and 21 species preserved in jars of alcohol. The herp collection includes 35 specimens representing 15 genera and 17 species in the form of preserved turtle shells and specimens preserved in jars with alcohol. The mammal collection represents 30 species in the forms of hides stretched on wire frames and skulls displayed in a glass-topped case.

The majority of specimens in our museum cases were collected on site by RWF personnel, researchers from the Illinois Natural History Survey, or educational institutions. Databases are maintained on each of these collections, and informational brochures illustrating species lists for the Foundation property are available for educational and research purposes.



Interns Kaleb (left) and Ben (right) flanking volunteers Delaney Basala and John Kerr, collecting seed of Western False Dragonhead

INTERNSHIP / SEASONAL EMPLOYEE PROGRAM

Most years we offer one or more internships during the summer and/or fall months. This year we were fortunate to be able to offer a full-time, college level internship and the first part-time high school position we have offered in many years. Ben Kusiak, who is completing his Environmental Science B.S. at Northern Illinois University, served in the prior role and Kaleb Kleckner, a student at Mendota High School, the latter. For both, their role with us this summer was their first job in the conservation field.

Ben and Kaleb joined our team in early summer once the school semester was over. Their responsibilities included invasive species control, collecting native plant seed, Wood Duck and Bluebird nest inspections, equipment and shop maintenance, removal of dead trees, and wildlife surveys. In addition, they each found productive roles in our Blanding's Turtle trapping project and our mesopredator removal program. Both young men displayed strong work ethics, an aptitude for the type of work we do, creative minds, reliability, and a willingness to do what needs to be done. Our year would not have been as successful without their efforts. We're grateful for their hard work, wish them both a bright future, and hope they enjoyed their experience at RWF.



Interns Ben (left) and Kaleb (right)

VOLUNTEERS

The Foundation has benefitted over the years from the help of volunteers who donate their time in large or small amounts to assist with our conservation projects. At times, volunteers have come to us as individuals who introduce themselves simply to offer their help. Other times they have come in group form as entire scouting troops, classes, or student groups. This year we were fortunate to have help from Foundation family and friends, as well as a few new faces. Terry Moyer provided a helping hand during the spring burn season. Tess Wilson edited and proofread copy such as this report and saved us more than a few supply runs into town. We welcomed back Randy Rutledge, Nancy Zorn, and Kaylie, Carter, and Preston Hamm and their help collecting wetland plant seed. Robert Sabin helped this spring with our Garlic Mustard control program. John Kerr and Delaney Basala, friends of summer intern Ben Kusiak, joined our crew to collect prairie seed by the bucketful. We greatly appreciate the work that each put forth on the projects in which they were involved. We continue to seek and encourage other potential volunteers of various skill, knowledge, and experience levels, as there is no shortage of valuable habitat work to be done throughout the year.



Our new (to us) John Deere 9500 combine unloading corn into a gravity wagon

EQUIPMENT, PROPERTY, AND BUILDING IMPROVEMENTS

Equipment maintenance and repairs account for a significant percentage of total employee hours each year. The following list details repairs or improvements made to implements, tractors, and trucks this year:

S770 Bobcat

- Repl. hydraulic hose
- Buffed scratches out of forestry windshield
- Repl. rim, tire, foam

Skid Steer Grapple Bucket

- Repaired 2 cylinders
- Repaired bucket

Woods Batwing 180 Mower

- Replaced blades

John Deere 4020

- Replaced rear tires
- Moved old tires to duals
- Repr. hyd. cooler tank
- Replaced rear remote
- Replaced batteries
- Straightened muffler pipe
- Repr. hyd. reservoir leak
- Repr. hydraulic remote

John Deere 4040

- Repr. steering column
- Repr. 3-pt linkage

John Deere 4840

- Replaced starter
- Flat tire repair
- Repaired fuel leaks
- Repaired hydraulic leaks

John Deere 450H Bulldozer

- Replaced batteries

John Deere 1435

- Replaced blades

John Deere 9500 Combine

- Replaced batteries

300 Gallon Sprayer

- Replaced pump

John Deere Gators

- Flat tire repair

Yard Machine Snowblower

- Replaced muffler

Pickup Trucks

- Repl. tires on '11 Chev.
- Door handle, '07 Chev.
- Hail repair, '11 Chev.

In addition to the specific list above, we changed filters, fluids, and grease for all tractors and trucks; sharpened mower blades; made numerous repairs to small equipment including the chainsaws, backpack sprayers, snow blower, and leaf blowers; and patched or otherwise repaired tires of implements, tractors, and trucks as needed. We also retired our aged 7720 Combine and headers and replaced them with a 1995 John Deere 9500, 920 Grain Platform, and 643 Corn Head.



Pressure washing the Sanctuary chimney from a lift

EQUIPMENT, PROPERTY, AND BUILDING IMPROVEMENTS

This year at the buildings on the Martin Tract we pressure washed and painted a lean-to barn; replaced a window air conditioning unit in the house that we use for interns and visiting researchers; and replaced two entry doors, made electrical repairs, and installed security cameras at our shop building. At our office building we replaced and downsized the water heater, installed security cameras, made repairs to the boiler heat system, and replaced vinyl fence boards and posts at our entry gate. We replaced the rotted tongue-in-groove baseboards on the west side of the truck shed. At the Montavon farmhouse we replaced and re-wired the main breaker box. At the brick farmhouse we painted 3 rooms, re-shingled the south-facing addition, made electrical repairs, and replaced vinyl siding and 2 windows on the south façade. We made electrical repairs to faulty boxes in the Wysnienski South machine shed and repaired the compressor for the refrigeration system at the cooler room.

At the lodge we power washed the building, cleaned gutters, cleaned windows, made masonry repairs to the porch, replaced the gas grill, repaired the water softener, repaired basement hallway lights and replaced ballast, made plumbing repairs including replacing the faucet in the laundry room, replaced damaged wall paneling in the basement classroom, installed security cameras, applied a weed and feed, and rolled the lawn. We power washed the old cabin and painted the doors and soffits.

At the Sanctuary we power washed the entire building including the exterior chimney, stone walkways, and decks; applied touch-up stain to decks; cleaned gutters; thoroughly re-caulked; replaced the gas grill; sanded and refinished the exterior doors with polyurethane; replaced a garage door sensor; replaced the pump and pressure tank for the waterfall; made repairs to cabinetry; repaired ice and erosion damage to the dock; repaired ceiling panels in the mudroom; and installed security cameras.

Other repair and maintenance jobs included winterizing buildings, pressure washing algae from barn roofs and walls, cleaning gutters, and splitting firewood.

As in any year we spent significant time removing trees that were dead or dying from disease or brought down by storms and pruning trees near buildings and along lanes and trails to maintain accessibility on the property.

Property maintenance included many of the jobs listed above as well as overseeing pest control contractors at the Lodge and Sanctuary; mowing and rolling lawns; maintaining landscaping; grading, spreading gravel, and patching potholes on lanes; clearing snow; repairing and maintaining cable gates and posts; posting property boundary signs; clearing overhanging limbs from trails and firebreaks; and removing Beaver dams where necessary for proper drainage. We improved a seasonally flooded section of trail east of Teal Wetland by the addition and grading of 5–6" shot rock, raising the trail a few inches while allowing for percolation of any standing water across the trail. We repaired one section of field tile on the Wysneinski North tract this year that had caused an especially large blowout hole that could have swallowed a pickup. Once we had located the broken and dislodged section of old clay tile, we replaced it with a section of plastic perforated tile and brought in numerous trailer-loads of fill dirt which we had saved from a previous wetland restoration.



Prescribed burn in the LaFox oak savanna

PRAIRIE AND SAVANNA MANAGEMENT

On March 22nd and 23rd we conducted successful controlled burns on approximately 52 acres of prairie, savanna, and creek banks. With a crew of 5 people, 2 John Deere Gators, and a John Deere tractor—each machine with 50-gallon pumper units—and 2 drip torches, we established a blackened safety zone around the perimeter of each unit prior to head firing. A total of seven units were safely and successfully burned. In the early autumn our crew returned to cut and treat invasive Bush Honeysuckle and Autumn Olive invading the unburned half of the savanna using chainsaws, loppers, and herbicide.

POND MANAGEMENT

We controlled aquatic vegetation and algal blooms using various chemical applications over the course of the growing season. For control of rooted aquatic vegetation, we applied Nautique once in April and Reward and/or Aquastrike in 4 different applications from May to September. We made 12 treatments with Cutrine Ultra and/or Clearigate and Aquaprep to control algae from April through September. In all, we used a total of 5 gallons of Nautique, 6.25 gallons of Reward, 3 gallons of Aquastrike, 5.25 gallons of Cutrine Ultra, 0.25 gallons of Clearigate, and 3.75 gallons of Aquaprep. The continued use of Aquashade, an EPA-approved pond dye which limits the amount of light available in the water column, has helped us reduce the severity of blooms and therefore the amount of herbicide and algaecide needed to manage the pond. We applied a total of 12.5 gallons of Aquashade dye in 4 treatments across the growing season.

We performed regular maintenance on the aeration system to help balance the diffusers and keep them operating efficiently. In September, we retrieved all diffusers from the pond bottom, cleaned them in a muriatic acid bath, reassembled them to the plastic tubing, lowered them to the pond bottom, and balanced the pressure to diffusers from the pump.





Oyster Mushrooms growing on a Black Cherry tree

ADMINISTRATION

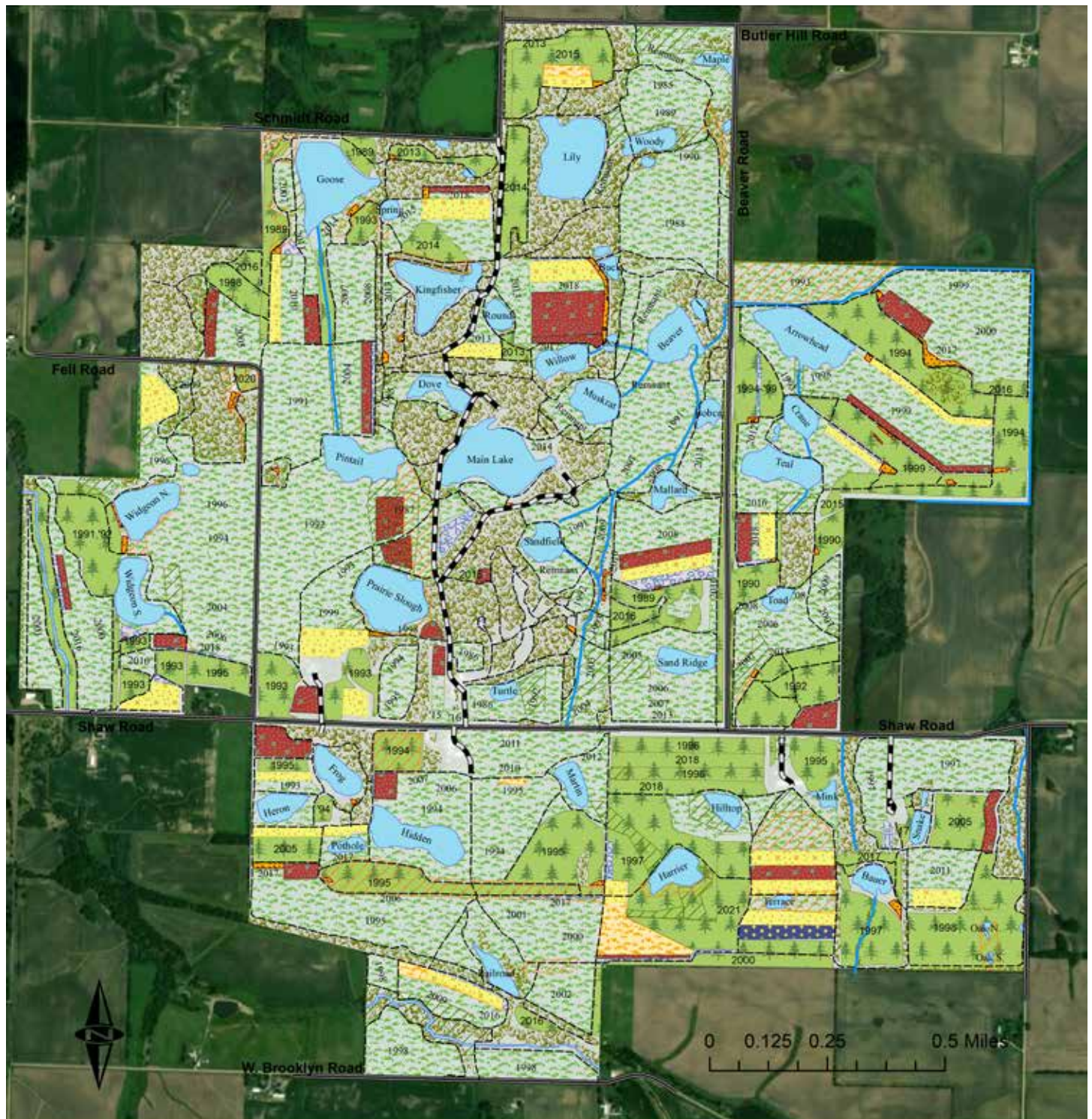
The following is a brief list of administrative support services involved with the daily operation of the Wildlife Foundation:

- Habitat planning, layout, mapping, and evaluation of annual land management practices
- Budgeting, payroll, task code, and programmatic accounting
- Preparation of an annual report of Wildlife Foundation accomplishments
- Maintenance of a website representing the Wildlife Foundation
- Representing RWF at meetings and conferences for the advancement of the Foundation
- Coordination of investigations, surveys, and research projects
- Literature review and research regarding management practices & conservation issues
- Completion of required state and federal reports for continued operation
- Applying for miscellaneous permits and licenses needed for continued operation
- Complying with reporting requirements for federal crop programs
- Ordering and purchasing supplies needed for operation and project implementation
- Conducting staff meetings and training sessions
- Devising work plans, project lists, and scheduling
- Conducting annual employee evaluations and reviews
- Technical support services
- Seeking and interviewing potential employees or internship applicants
- Maintaining professional and business contacts
- Legal searches and review of operations
- Program evaluation and review
- Correspondence and miscellaneous office duties

PHOTO CREDITS

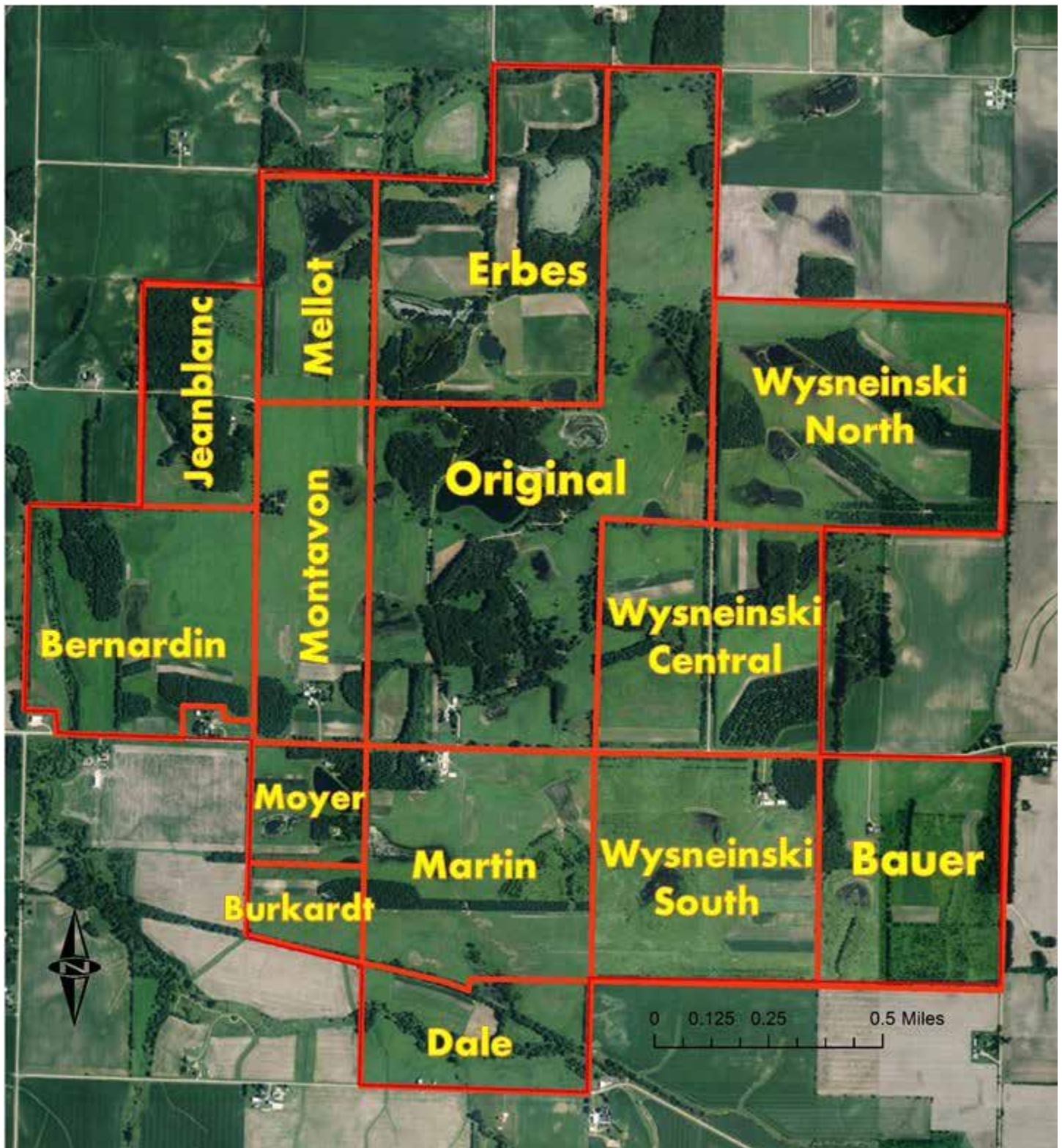
The following individuals contributed photographs for this year's annual report: Brian Towey, Amanda Contreras, Allison Earle, and Ben Kusiak. We thank them for the use of their photos.

MAP OF HABITAT MANAGEMENT PRACTICES



Legend

Gravel Lane	Water	Interseed, 2021	Corn	Clover Foodplots
Trails	Prairies, 2021	Habitat Preparation	Soybeans	Existing Timber
Roads	Prairies	Mixed Foodplots	Sunflowers	Tree Plantings



2021 ACREAGE FIGURES

RICHARDSON WILDLIFE FOUNDATION

Prairie Restoration	Acres	% of Total
1985	21.2	
1986	13.3	
1987	8.2	
1988	19.3	
1989	6.9	
1990	15.5	
1991	38.8	
1992	39	
1993	45.9	
1994	41.3	
1995	52.2	
1996	25.2	
1997	25.4	
1998	33.1	
1999	38.2	
2000	51.2	
2001	25.2	
2002	10.9	
2003	7.1	
2004	15.3	
2005	17.1	
2006	26.5	
2007	28.68	
2008	20.2	
2009	12.6	
2010	18.52	
2011	23.85	
2012	16.1	
2013	30.5	
2014	19.2	
2015	9.2	
2016	12.13	
2017	20.28	
2018	2.05	
2019	0.25	
2021	13.85	
TOTAL ACRES-	804.2	40.7%
Remnant Prairie -	40.4	2.0%
Tree Plantings		
1989	13.8	
1990	7.4	
1991	16.7	
1992	23.8	
1993	16.2	
1994	51	
1995	39.7	
1996	15.1	
1997	46.4	
1998	23.7	
1999	23.8	
2000	2.2	
2001	1.7	
2002 - (625*)		
2003 - (300*)		
2004 - (452*)		
2005	15.2	
2013	9.2	
2014	11	
2015- (28*)	14.2	
2016- (37*)	8.9	
2017- (108*)	8.65	
2018- (81*)	12	
2019- (242*)		
2020- (241*)	1	
2021-	9.2	
TOTAL ACRES-	370.9	18.8%
<i>* Potted trees planted within existing woodland plantings.</i>		
Pre-existing Timber	291.2	14.7%

Wetlands	Acres	% Of Total
Beaver	5.5	
Main Lake	14.2	
Woody	2.4	
Dove	3.2	
Muskrat	5.1	
Sandfield	3.8	
Goose	13	
Teal	6.5	
Mallard	2.6	
Pintail	7.1	
Wigeon North	2.4	
Wigeon South	5.4	
Prairie	8.2	
Hidden	7.6	
Pothole	1.3	
Hilltop	2.7	
Bauer	2.5	
Martin	3.5	
Railroad	2.2	
Terrace	0.75	
Harrier	5.2	
Turtle	1.5	
Crane	2.8	
Arrowhead	6.8	
Bobcat	1.5	
Lily	13.4	
Willow East	2.3	
Willow West	1.8	
Round	1.6	
Kingfisher	8	
Spring	1.3	
Mink	1.1	
Snake	1.9	
Sand Ridge	2.1	
Toad	2	
Buck	1.65	
Doe	0.5	
Maple	2	
Dugouts (4)	0.75	
Oak	0.59	
Quail	1.5	
Dugouts (6)	1	
TOTAL ACRES-	163.3	8.3%
Cool Season Grasses		
TOTAL ACRES-	27.6	1.4%
Food Plots	Acres	% Of Total
Corn	54.7	
Soybeans	57.6	
Oats	0.0	
Sunflowers	3.2	
Winter Wheat	0.0	
Clover / Chicory	15.6	
Brassica	6.5	
TOTAL ACRES-	137.7	7.0%
Drainages		
Bauer	1.2	
Bernardin	1.1	
Dale	1.3	
Sandfield	0.5	
Wysneinski	1.6	
TOTAL ACRES -	5.7	0.3%
Trail \ Firebreaks -		
Total Length - 47.87 miles	70.3	3.6%
Road \ Ditch Easements	45.9	2.3%
Total Length - 6.6 miles		
Building and Home Sites -	18.9	1.0%
TOTAL ACREAGE -	1,976	



HUNTER HARVEST

The following table represents hunting activity for the past calendar year. One hunter trip is defined as a hunter going afield for one specific hunting activity. For example, a hunter may have hunted deer in the morning and hunted pheasants in the afternoon, or hunted deer in the morning and again in the afternoon. Both of these examples would count as two hunter trips for the same day.

<u>SPECIES</u>	<u>HUNTER TRIPS</u>	<u>HARVEST</u>
Dove	10	78
Waterfowl	5	7*
Pheasant	5	5
Deer (Archery)	264	31**
Deer (Firearm)	4	3**
Coyote	****	3
Turkey (Spring)	16	5***
Turkey (Fall Archery)	****	2***

* The waterfowl harvest included 4 Canada Geese, 2 Blue-Winged Teal, and 1 Green-Winged Teal.

** The deer harvest included 25 does and 9 bucks with the following breakdown: 24 adult females, 1 juvenile female, 7 adult males, and 2 juvenile males.

*** The turkey harvest included 2 Toms and 3 Jakes harvested in the spring season and 1 Tom and 1 hen harvested in the fall archery season.

**** Hunter trips were incidental to deer or Turkey hunting.

TRAPPING HARVEST

<u>SPECIES</u>	<u>HARVEST</u>
Raccoon	347
Muskrat	0
Opossum	30
Eastern Cottontail	3
Mink	2
Fox Squirrel	1
Striped Skunk	2
Beaver	0
Badger	1
Coyote	0



Trimming tree branches over our main lane



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