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RUSSELL PROPERTY, 2014 ANNUAL REPORT

The portion of the subject property that is appraised for wildlife management use is 1829 acres in surface area. The property is used as a sanctuary for several species of rare and endangered species of wildlife as well as for hunting and recreational wildlife viewing. Native habitat restoration is the primary focus of the wildlife management activities executed in 2014 which included: habitat control, providing supplemental food, predator control, and population monitoring.

I. HABITAT CONTROL

Prescribed Burns

Prescribed burning is being utilized on the subject property as the primary method for native habitat restoration. In 2014 over 300 acres were treated with prescribed fire. Burn units are treated with fire on a rotation that mimics native cycles with uplands sites being burned more frequently than low lying sites that would seldom be prone to wildfires as a result of saturated or inundated soils. The portions of the property that are regularly burned total approximately 1,300 acres. These areas are treated with prescribed burns on a 3-5 year rotation.

Supporting Documentation Included: Prescribed fire photos taken on the Russell property in 2014 (shown below)



Annual prescribed burning operations are conducted on the Russell Property by full time and part time employees that are experienced in the safe and effective execution of prescribed burns.

Habitat Protection for Species of Concern

The Russell Property is home to the western most naturally occurring stand of long leaf pines. These trees are of significant ecological importance to a variety of wildlife species, most notably the endangered red cockaded woodpecker. Extensive measures are taken to identify these specimens and restrict any activity that would be potentially harmful to the trees. The careful execution of the prescribed burning activities described above recreates the native habitat conditions that allow longleaf pines and the wildlife populations that depend on them to thrive.

In addition the longleaf pine sanctuary established on the Russell property, several other rare habitat types exist and are home to rare flora and fauna. Included in this list is the catahoula barrens habitat where the presence of an extremely rare orchid was documented by Dr. Sharma as part of a botany project funded by TPWD.

Supporting Documentation Included: Photos of marked and protected longleaf pine specimens, photos of rare flora and botanist documenting rare plant community



Longleaf pine specimens identified, evaluated, and marked every 2 years.



Longleaf pine sapling that survived carefully executed cool season burn.

II. SUPPLEMENTAL FOOD

Deer Feeders

In 2014 feeders were used throughout the property to make protein feed available to white-tailed deer during the spring and summer to aid in fawn production and antler development. During the fall and winter corn was fed to provide deer with a high energy food source to replenish energy reserves lost during the rut and winter stress period.

Included Supplemental Documentation- Feeder Photos



Photos of deer feeders in use on the subject property.

Food Plots

Various food plots are located within cendaros, clearings, and brief open pockets surrounded by forest throughout the subject property. The combined surface area of these food plots is estimated to be 40 acres. Food plot plantings consists of a combination of cereal rye and oats, which are planted each fall.

Prescribed Burns

The prescribed burning activities described in section I reduce competition from invasive species and stimulate growth of native forage sources for target wildlife populations.

III. PREDATOR CONTROL

Hog Control

Feral hogs are prevalent on the subject property, and were hunted as well as harvested opportunistically in 2014, with 93 pigs being harvested during the year.

IV. POPULATION CENSUS

Incidental Observations- Birds

Mr. Russell reports bird sightings via e-mail to Bret Frenz who is the regional editor of North American Birds, former director of the Texas Ornithological Society, and maintains an online data base of bird sightings throughout the state (www.bafrenz.com). Various other photos, surveys, and observations are recorded throughout the year.

Habitat Survey

Included Documentation- Attached is a plant and habitat survey conducted in 2014.

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June 20, 2014

George Russell
1401 19th Street
Huntsville, Texas 77340

Dear Mr. Russell:

This letter includes the results of a plant survey and recommendations for management along the section of Waterwood Parkway from FM 980 to the end of the road at the former location of the clubhouse. This right-of-way (ROW) easement is referred to as "the Russell leased Parkway" in the "Agreement to Lease and Maintain Waterwood Parkway" document signed by you and Mrs. Suzanne Russell with the Waterwood Improvement Association Inc. (WIA) president, Jack Zimmerman. The effective date of this document is June 1, 2012.

On June 20, 2014, I met with you and two of your employees to record all identifiable vascular plant species along "the Russell leased Parkway", hereafter referred to as ROW. We walked approximately ¼ mile along the ROW recording all identifiable species. Once most of the obvious species had been recorded, we then drove the remaining sections of the ROW recording any new species not previously identified. The soils along the ROW are predominantly sandy loam uplands with scattered small marshy areas. The two dominant species along the ROW are the non-native exotic species (NNIS) bahia grass (*Paspalum notatum*) and native perennial species Texas wintergrass (*Nassella leucotricha*). Other perennial native grasses are also beginning to colonize the ROW, particularly in areas that haven't been mowed as frequently. These species include little bluestem (*Schizachyrium scoparium*), bushy bluestem (*Andropogon glomeratus*), switchgrass (*Panicum virgatum*), and Eastern gamagrass (*Tripasacum dactyloides*). In addition, fall blooming forbs such as three species of aster (*Symphyotrichum* spp) and two species of goldenrod (*Solidago* spp) are also colonizing many areas that afford some protection from frequent mowing. Of particular interest was Sampson's snakeroot (*Orbexilum pedunculatum*), which is uncommon and rarely encountered, except in relatively undisturbed habitats. This species was only observed under existing overstory trees where mowing has occurred much less frequently. A total of 131 native species were observed along the ROW including many species that bloom in late summer and fall. A total of 14 NNIS were also observed, primarily in areas immediately adjacent to the road that are frequently mowed. In my experience, frequently mowed areas and other highly disturbed areas are more susceptible to NNIS encroachment while less frequently mowed areas allow native species to propagate and thrive.

According to the lease agreement on page 6, mowing shall be done subject to the Texas Department of Transportation (TXDOT) Roadside Vegetation Manual. According to this

manual and along "Developed Urban Highways" (defined as rights of way within smaller cities, towns and villages), TXDOT is directed to "Establish non-mow or natural areas at appropriate locations within the right of way, to provide for wildflower preservation, regeneration of native plant species and establishment of nesting habitat for wildlife". These areas should be "clearly marked to prevent accidental mowing during modified full-width mowing." Given that this stipulation is the directive of TXDOT in its manual and WIA agreed to follow this manual in the lease agreement, it is my recommendation to set aside areas for regeneration of native plant species that are currently present and rapidly colonizing in less frequently mowed areas. In my professional opinion, in order for this agreement to follow the guidelines outlined the TXDOT manual, a native plant regeneration area should be established since numerous native species are currently present and colonizing the ROW. Perhaps, a suitable compromise for the lease agreement would be to mow one mower width immediately along the roadside once in the growing season and again mow the entire ROW in late fall or winter when all native species have gone to seed.

My qualifications to complete this survey are as follows. I received my Bachelor of Science degree in Environmental Science from Stephen F. Austin State University in 1995 and have worked for more than nineteen years as a botanist and plant ecologist including three years at the Environmental Division of Fort Polk Military Installation in Louisiana and the last sixteen years at Raven Environmental Services, Inc in Huntsville, TX. I have conducted plant inventories, rare plant surveys, and ecological classifications on over 20,000 acres for Texas Parks and Wildlife, U.S. Department of Defense, City of Austin, and over a dozen large and small private landowners in Texas and the Southeastern U.S. Please see attached resume.

Please let me know if you have any questions or concerns or need any additional information. Thank you for the opportunity of completing this survey, and please let me know if you need any assistance on future projects.

Sincerely,



Eric L. Keith
Botanist/Plant Ecologist

Attachments:

Keith Resume
List of Plants Recorded During Survey

List of Species Recorded along “the Russell leased Parkway”

Acanthaceae	Ruellia humilis	Native
Anacardiaceae	Toxicodendron radicans	Native
Apiaceae	Hydrocotyle verticillata	Native
Apiaceae	Polytaenia texana	Native
Apiaceae	Ptilimnium capillaceum	Native
Apiaceae	Ptilimnium nuttallii	Native
Apocynaceae	Trachelospermum difforme	Native
Aquifoliaceae	Ilex vomitoria	Native
Asclepiadaceae	Asclepias tuberosa	Native
Asclepiadaceae	Asclepias verticillata	Native
Asclepiadaceae	Asclepias viridis	Native
Asteraceae	Ambrosia psilostachya	Native
Asteraceae	Boltonia diffusa	Native
Asteraceae	Chrysopsis pilosa	Native
Asteraceae	Chrysopsis texana	Native
Asteraceae	Cirsium horridulum	Native
Asteraceae	Coreopsis lanceolata	Native
Asteraceae	Echinacea sanguinea	Native
Asteraceae	Englemannia peristenia	Native
Asteraceae	Erigeron strigosus	Native
Asteraceae	Eupatorium coelestinum	Native
Asteraceae	Eurybia paludosa	Native
Asteraceae	Gaillardia pulchella	Native
Asteraceae	Helenium amarum	Native
Asteraceae	Helenium flexuosum	Native
Asteraceae	Hymenopappus artemisiifolius	Native
Asteraceae	Liatris aspera	Native
Asteraceae	Liatris pycnostachya	Native
Asteraceae	Pityopsis graminifolia	Native
Asteraceae	Pseudognaphalium obtusifolium	Native
Asteraceae	Pyrrhopappus carolinianus	Native
Asteraceae	Rudbeckia hirta	Native
Asteraceae	Rudbeckia grandiflora	Native
Asteraceae	Solidago radula	Native
Asteraceae	Solidago ulmifolia	Native
Asteraceae	Symphyotrichum dumosum	Native
Asteraceae	Symphyotrichum patens	Native
Asteraceae	Symphyotrichum subulatum	Native
Bignoniaceae	Campsis radicans	Native
Campanulaceae	Triodanis biflora	Native
Caprifoliaceae	Symphiocarpus orbiculatus	Native
Cistaceae	Lechea mucronata	Native
Cistaceae	Lechea tenuifolia	Native
Clusiaceae	Hypericum hypericoides	Native
Commelinaceae	Commelina erecta	Native
Convolvulaceae	Dichondra carolinense	Native

Convolvulaceae	<i>Ipomoea cordatotriloba</i>	Native
Convolvulaceae	<i>Stylisma humistrata</i>	Native
Cyperaceae	<i>Carex bushii</i>	Native
Cyperaceae	<i>Carex cherokeensis</i>	Native
Cyperaceae	<i>Carex flaccosperma</i>	Native
Cyperaceae	<i>Eleocharis montevidensis</i>	Native
Cyperaceae	<i>Rhynchospora caduca</i>	Native
Cyperaceae	<i>Rhynchospora globularis</i>	Native
Ebenaceae	<i>Diospyros virginiana</i>	Native
Ericaceae	<i>Vaccinium arboreum</i>	Native
Euphorbiaceae	<i>Acalypha gracilens</i>	Native
Euphorbiaceae	<i>Chamaesyce maculata</i>	Native
Euphorbiaceae	<i>Croton glandulosus</i>	Native
Euphorbiaceae	<i>Croton monathogynus</i>	Native
Fabaceae	<i>Baptisia nuttalliana</i>	Native
Fabaceae	<i>Cassia fasciculata</i>	Native
Fabaceae	<i>Galactia volubilis</i>	Native
Fabaceae	<i>Gleditsia triacanthos</i>	Native
Fabaceae	<i>Indigofera miniata</i>	Native
Fabaceae	<i>Lespedeza repens</i>	Native
Fabaceae	<i>Mimosa nuttallii</i>	Native
Fabaceae	<i>Neptunia lutea</i>	Native
Fabaceae	<i>Orbexilum pedunculatum</i>	Native
Fabaceae	<i>Strophostyles umbellata</i>	Native
Fabaceae	<i>Stylosanthes biflora</i>	Native
Fagaceae	<i>Quercus marilandica</i>	Native
Fagaceae	<i>Quercus nigra</i>	Native
Fagaceae	<i>Quercus stellata</i>	Native
Juncaceae	<i>Juncus brachycarpus</i>	Native
Juncaceae	<i>Juncus validus</i>	Native
Lamiaceae	<i>Monarda citriodora</i>	Native
Lamiaceae	<i>Physostegia digitalis</i>	Native
Lamiaceae	<i>Prunella vulgaris</i>	Native
Liliaceae	<i>Nothoscordum bivalve</i>	Native
Linaceae	<i>Linum medium</i>	Native
Loganiaceae	<i>Gelsemium sempervirens</i>	Native
Malvaceae	<i>Callirhoe papaver</i>	Native
Melastomataceae	<i>Rhexia mariana</i>	Native
Menispermaceae	<i>Cocculus caroliniana</i>	Native
Nyssaceae	<i>Nyssa sylvatica</i>	Native
Onagraceae	<i>Oenothera laciniata</i>	Native
Onagraceae	<i>Oenothera speciosa</i>	Native
Oxalidaceae	<i>Oxalis dilleni</i>	Native
Passifloraceae	<i>Passiflora lutea</i>	Native
Pinaceae	<i>Pinus echinata</i>	Native
Pinaceae	<i>Pinus palustris</i>	Native
Pinaceae	<i>Pinus taeda</i>	Native
Plantaginaceae	<i>Plantago aristata</i>	Native

Plantaginaceae	Plantago virginica	Native
Poaceae	Andropogon glomeratus	Native
Poaceae	Aristida oligantha	Native
Poaceae	Dichanthelium aciculare	Native
Poaceae	Dichanthelium acuminatum	Native
Poaceae	Dichanthelium depauperatum	Native
Poaceae	Dichanthelium ravenelii	Native
Poaceae	Dichanthelium sphaerocarpon	Native
Poaceae	Elymus virginicus	Native
Poaceae	Nassella leucotricha	Native
Poaceae	Panicum virgatum	Native
Poaceae	Paspalum setaceum	Native
Poaceae	Schizachyrium scoparium	Native
Poaceae	Sorghastrum nutans	Native
Poaceae	Tridens flavus	Native
Poaceae	Tripasum dactyloides	Native
Portulacaceae	Portulaca pilosa	Native
Rosaceae	Crataegus marshallii	Native
Rosaceae	Crataegus spathulata	Native
Rosaceae	Rubus louisianus	Native
Rosaceae	Rubus trivialis	Native
Rubiaceae	Diodia teres	Native
Rubiaceae	Diodia virginiana	Native
Saxifragaceae	Lepuropetalon spathulatum	Native
Smilacaceae	Smilax bona-nox	Native
Smilacaceae	Smilax glauca	Native
Smilacaceae	Smilax smallii	Native
Ulmaceae	Ulmus alata	Native
Verbenaceae	Callicarpa americana	Native
Verbenaceae	Phyla nodiflora	Native
Violaceae	Viola sororia	Native
Vitaceae	Parthenocissus quinquefolia	Native
Vitaceae	Vitis cinerea	Native
Vitaceae	Vitis rotundifolia	Native
Poaceae	Bothriochloa laguroides	Native
Poaceae	Paspalum plicatulum	Native
Verbenaceae	Verbena halei	Native
Apocynaceae	Nerium oleander	Non-native
Asteraceae	Facelis retusa	Non-native
Fabaceae	Kummerowia striata	Non-native
Fabaceae	Trifolium lappaceum	Non-native
Poaceae	Aira elegans	Non-native
Poaceae	Bothriochloa ischaemum	Non-native
Poaceae	Briza minor	Non-native
Poaceae	Bromus japonicus	Non-native
Poaceae	Paspalum dilatatum	Non-native
Poaceae	Paspalum notatum	Non-native
Poaceae	Paspalum urvillei	Non-native

Poaceae	Sorghum halapense	Non-native
Poaceae	Stenotaphrum secundatum	Non-native
Verbenaceae	Verbena rigida	Non-native