

The Village of Innsbrook Conservation Management Plan

**A Landowner's Guide to Practicing Conservation on
Properties Within the Village of Innsbrook**



**Prepared in collaboration with
The Missouri Department of Conservation
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Introduction

The forests, fields, streams, lakes, and abundant wildlife are what draw people to reside in the Village of Innsbrook. As a private landowner, the future of the forest and the natural resources that lies within rests in your hands. The management decisions you make today will dramatically effect the environment where you reside. Whether the effect is positive or negative depends upon your understanding of the environment you live in and the management decisions you adopt.

Since joining Audubon International and their Audubon Cooperative Sanctuary Program, I realized a need within the Village of Innsbrook for a conservation management plan. I would like to thank Gus Raeker with the Missouri Department of Conservation for his collaboration, sharing his knowledge, and all of his efforts to help create this plan. Gus's efforts were key to accomplishing this project.

The importance of this plan to our community is to educate you as a private land owner on the best management practices used to maintain a natural environment of any size. Though many of you may not feel your individual property is large enough to manage, you should view your property as a microenvironment that combined constitutes a vast and diverse 7,486-acre natural environment that we now call the Village of Innsbrook.

It is my hope that whether you are a long time resident of Warren County or someone that has recently moved to the area will use this plan to give you a better understanding for the environment that you have chosen as your home and the value of managing that environment.

The plan is divided into five sections. Each section describes an issue or opportunity that you may encounter on your property. The last section has web links and other sources for information beyond the scope of this plan.

The information set forth in this plan is intended to provide ideas and best management practices, and in no way represents rules or regulations.

If you have any questions or want further information please call Keith Thompson Director of Horticulture for Innsbrook Resort at 636-745-3000 x 177, email keith.thompson@innsbrook-resort.com

Forests

The majority of the Village of Innsbrook's landscape is forestland. These forests contain a great diversity of trees, shrubs, and ground flora, and provide home to hundreds of species of wildlife. They filter our air, protect our soil, keep our water clean, and provide great aesthetic beauty.

It is commonly thought that the best way to take care of a forest is to leave it alone. However, in reality, forest management is not usually that simple. For as long as there have been forests, there have been various disturbances that have played a role in forest

health. Fire, tornadoes, logging, and insects and diseases are just a few. Although some of these disturbances are human-caused, many are completely natural. In our effort to “leave it alone” and let our forest evolve “naturally,” we have eliminated many of the disturbances that traditionally were so important to forest health. Although some disturbances can have negative impacts on forests, other disturbances are very beneficial.

Room to Grow

Because of human intervention there is virtually no forest disturbance through natural means, and our forest environment has become overcrowded and native species of flora have been reduced within this valuable ecosystem.

One of the key functions of disturbance is to thin trees. Just as fish in a hobby tank grows larger with more room, trees growing in a thinned forest will grow larger and faster, produce more fruit or nuts, and fend off insects and disease more effectively. Overstocked forests, on the other hand, grow very slowly and are much more vulnerable to insect, diseases and catastrophic wild land fires.

In most cases, it is no longer practical or desirable to bring fire or some other influences back to our forest. However, there are other ways of accomplishing the same effect.

A best management practice for thinning your micro-forest is to girdle less desirable trees with a chainsaw and if possible leave the tree to stand as a snag, or dead tree that provides habitat. This practice provides habitat for cavity dwelling birds, food for many insects and animals, and eventually returns nutrients back to the soil as the tree decomposes. Another benefit of snags is they provide woodpeckers a natural habitat to peck on for food and shelter, instead of your cedar sided home.

Girdling trees involves using a chainsaw and cutting a ring around the trees circumference about an inch deep. Make sure both ends of the cut connect. Since the outside ring is the only living part of the trunk, this will eventually deaden the tree. And remember, these snags provide a lot of value to wildlife.

The other alternative to girdling and leaving snags is to cut down the less desirable trees. This should be done if there is a possibility of damage to your home or anything desirable that could be damaged if a limb were to fall during a storm. This can also be a great way to stock some firewood for the fall and winter.

When choosing trees to thin out, keep these general guidelines in mind:

1. Trees compete for two main resources, sunlight, and growing space. Understory species such as dogwood, redbud, and serviceberry pose no competition and should be left to grow.
2. Trees should have about 10 feet of open space between their crown and that of any adjacent trees. When two healthy trees grow next to each other, there is no need to cut one down, merely open up some space for these two trees. You

should properly trim surrounding trees to allow at least two sides of the combined crown to be open.

3. The oaks and hickories in our forest are nearly the same age and is due to the railroad industry heavily logging the forest near the turn of the century for their expansion to the west. Our current forest is comprised mostly of the seedlings that were released during these harvests and have since grown into the trees we enjoy today. When you see trees that are of the same species and one is much larger than the other, it is typically factors like genetics or soil conditions that cause the difference in growth proportion, rather than age. With either condition it would be recommended to target trees that fit this description for thinning.
4. Wildlife receives considerable value out of snags and cavity trees. Snags are dead standing trees. Cavity trees are large living trees that have large holes rotting away in the canopy. Wildlife use these trees for nesting and to get insects for food, try to leave several of these trees when thinning.
5. Other characteristics to consider when choosing trees for thinning:
 - ❖ Forked trunks; generally, the tissue between the two trunks is weak; this condition is known as included bark. With the tissue being weak and the trees root system structurally inadequate to support two canopies the tree is susceptible to wind damage.
 - ❖ Cavities; trees with cavities are rotting from the inside out. When these cavities are higher up in the tree, they are useful to cavity-dwelling wildlife. But when these cavities are at or near the ground, they serve little purpose for these types of wildlife.
 - ❖ Small or unhealthy crowns; in proportion, when a tree has a crown that is small or deformed looking it lacks the ability to produce the food required for normal growth and development. This will cause slow or stunted growth and be more susceptible to insects and disease.
 - ❖ Undesirable species; when it comes to wildlife, timber, and natural communities, not all trees are created equal. Species such as oak, hickory and walnut provide many more benefits than undesirable species such as maple, ash, and elm.

Sugar Maple Encroachment

In Missouri, one of the major effects of eliminating fire has been the increasing presence of sugar maples. Sugar maple has thin bark and is not very tolerant of fire compared to the oaks and hickories that have traditionally dominated our forest. However, maple is extremely tolerant of shade. With little to no fire in our forest and abundant shade under the majestic oaks and hickories the sugar maple is taking a strong foothold in the under story and is overtaking our hardwood forest.

There is no denying that sugar maples are beautiful in the fall but compared to oak and hickory, maple provides no food or habitat value for the wildlife that you enjoy observing while relaxing at your home or chalet. Oaks and hickories provide acorns and hickory nuts that help sustain wildlife through the winter, while sugar maple seeds do not provide any sustainable food.

Another problem with sugar maple is it produces such dense shade very little vegetation can grow underneath their canopies. With this reduction of understory vegetation erosion increases and water quality in our streams and lakes diminishes. Oaks and hickories allow adequate light transmission through which allows for plant diversity on the forest floor. As a result, the forest floor sustains wildflowers, shrubs, and tree regeneration. Besides their extrinsic value, these plants provide valuable food and cover for various species of wildlife while controlling erosion and increasing the water quality of the lakes with in the Village of Innsbrook. Once maple trees take over, wildlife disappears and lake water quality may diminish.

If your micro forest contains an abundance of sugar maple, you should work to eradicate the maples through griddling or removal. This will pay off big dividends when trying to attract wildlife and re-establishing wildflowers to your property. It won't be long and you will start to see the ground flora re-establishing, and soon after you will see wildlife return.

Unfortunately, if you simply cut maples or girdle them, they will probably sprout back. To avoid re-growth of any undesirable tree apply a herbicide to make your efforts last. This simply involves cutting the tree and treating the stump top or making a couple of hatchet marks in the trunk and applying herbicide to these marks. Not much herbicide is required to accomplish the task.

For more information on a sugar maple eradication program and proper implementation of the program, please contact Keith Thompson.

Brush Piles

For most species of wildlife, a safe place to rest or escape from predators is very important. Your property might offer a smorgasbord of food, but if there is no place to rest or escape from predators, wildlife will be reluctant to take advantage of your property.

With a little work, a brush pile can be constructed to create habitat that will give confidence to reluctant wildlife so they will frequently visit your property. For information on how to make brush piles, see the attached handout.

Sick Trees

In any forest, it is normal for trees to die in a scattered pattern. When trees become unable to compete against other plants for water and nutrients they become vulnerable to various insects and diseases that eventually cause the death of the tree.

To help identify potentially sick trees it is a good idea to monitor your larger trees. Monitoring a tree is as simple as looking for any rotten spots at ground level or on the upper portion of the trunk, observing if the canopy is full or distorted, determining if the root taper is even or uneven. Are there any holes penetrating the bark, and is any bark un-characteristically peeling off?

If you notice several trees that recently appeared to be healthy and now appear to be in decline, it would be a good idea to take a closer look and possibly call a professional to get some advice.

Most insects and diseases will only affect trees that are already weakened and have little interest in healthy trees. There are insects and diseases that can affect healthy trees and should be dealt with if found. If you observe multiple trees of the same species in decline or sudden death of these trees contact Keith Thompson. Records are kept of any type tree problem so please call. You may also call your local MDC Forester for information but be sure to call Keith and let him know you are having a tree problem.

Fire Preparedness

Every summer, terrible stories are reported on the news about huge wild fires destroying hundreds of thousands of acres of coniferous forest along with the neighborhoods that inhabit the same forest. Fortunately, wild fires in Missouri are much less severe. The forest composition and ground fuels in our forest are much less volatile; roads, creeks, mowed turf areas, and crop fields provide barriers that help slow wild fires and their destructive nature.

Missouri wildfires are still frightening realities that call for careful preparation. By taking a few precautions you can help ensure that fire fighters will be able to defend your home or chalet if threatened by a wildfire.

Precautions to create a defensible property:

1. Maintain 30 feet of defensible space around your buildings. Keep this zone free of accumulated ground fuels such as leaf litter or tall dead grass. This is a good place to maintain a lawn. If your buildings are located on a steep slope, increase this zone by 10 feet for every 10 percent of slope on the downhill side of the building.
2. Clean all dead leaves and needles from roof and gutters and clear tree limbs within 15 feet of your chimney or roof.
3. Soak fireplace and barbecue ashes in a metal bucket of water before disposal.
4. Propane tanks should not be located within the defensible zone and keep 10 feet around the tank clear of all ground fuels.

5. When possible use fire-resistant building materials. If wood is used for siding, roofing, or decks, you should consider extending your zone of defensible space.
6. Firewood should not be stored close too or up against buildings.
7. Clear fuels at least 10' away from burn barrels and cover the top of the barrel with a non-flammable ½" screen and fire pits should be extinguished with water before being left unattended.
8. Clearly post your address at your driveway entrance and at the front door of your home or chalet.

Open Lands

Compared to forests, open lands make up a small proportion of the Village of Innsbrook's acreage. This makes them very important to the ecological chain of life. Open areas provide habitat to a diverse population of flora and fauna.

Similar to our forests, management decisions of our predecessors have significantly changed the composition of our open areas. Native prairies have been tilled for row crops or converted to exotic grass species for grazing, fire exclusion has allowed glades to grow up into cedar thickets, and forest clearing has created open areas in places where they never before existed. Developing a management plan is the key for restoration of our prairies and will re-establish the havens for our native flora and fauna.

Management recommendations vary greatly from one site to another. Many factors will determine how you will manage the open ground on your property. Soil composition, topography, existing vegetation, seed banks, and management objectives are just a few.

The information below describes different methods for managing open land. To manage open land on your property, consider these options below to guide you in developing your own open land management plan.

Mowed areas

In some locations, maintaining a mowed lawn is the best option. Areas immediately adjacent to houses and roads for visibility, walking paths, and recreation areas should be kept mowed.

While those areas require weekly mowing, other areas should be mowed less frequently, and will still help keep them weed free and discourage ticks and chiggers. In these areas you should incorporate additional plant species such as clovers, Korean lespedeza, Kentucky blue grass and orchard grass; this transforms these areas into green browse for deer and rabbits and should help keep the wildlife from devouring your landscape plants.

At the end of the growing season consider allowing lawn areas and other vegetation to grow and become additional forage for the wildlife to use during winter. Again this will

provide more forage for the wildlife and will help keep them from eating your landscape plants.

Fallow Areas

Some fallow fields naturally have a good diversity of native warm season grasses, wild flowers and shrubs. These fields may only require periodic mowing or a prescribed burn to maintain them. Other fallow fields are full of exotic invasive plants like fescue or Johnson grass; these fields will require more intense measures to renovate for the benefit of wildlife.

Inexpensive ways to improve fallow areas that are predominated with invasive species is to use Roundup herbicide, disturb the area with fire, or disking and plowing. This will allow different seeds that are in the soil access to sunlight. Deep moldboard plowing can be especially effective because it exposes seeds from deep within the soil profile that have lain dormant for many years. Depending on the seeds in the soil “seed bank” you may be pleasantly surprised at what diversity of beneficial native plants re-grow.

Prairies and Savannas

A sea of tall amber grasses gently swaying with the breeze is often the image people conjure up when thinking of a prairie. Prairies contain thousands of different warm season grasses, wildflowers or “forbs” and shrubs. In a prairie, native grasses grow in clumps that reach 3-6 feet tall; in between the grasses is a mix of forbs, scattered shrubs, and bare ground. Established prairies provide habitat for the bobwhite quail, rabbits, hawks, butterflies, and a cadre of songbirds, all the while giving you endless days of enjoyment as you look out across your prairie!

Upland ridge top fields are often well suited to prairie vegetation. Some upland fields may already contain desirable plant species found in prairies, while many other fields have been choked out by exotic invasive cool season grasses.

Fields with desirable species and few or no aggressive exotics can be treated with a selective herbicide, proper mowing practices, prescribed burning, or frost seeding. Remember, do not attempt to burn any field with out help from a professional, a written burn plan must be developed for safe and proper implementation. Call Keith Thompson for information regarding prescribed burning.

To eliminate exotics from a field and restore it to a native prairie, you must first identify the species currently inhabiting the field. If there are some desirable species take care to preserve them. Fields with aggressive exotics like fescue will require the use of Round-Up herbicide along with disturbing the area using fire, disking, or plowing. Seeds then can be purchased to plant using no-till planting techniques. The procedure to restore a field to native prairie can be found under the section “Management of a Fallow Field”.

Savannas are essentially prairies with large scattered trees. Historically, savannas were a transition zone between prairies and forests. Their function and appearance is very similar to prairies. However, scattered trees provide an additional source of food and

cover. Savannas should be managed using the same management principles as prairies, just take extra precautions to preserve the health of the trees.

For more information see the publications “Establishing Native Warm Season Grasses” “Converting Fescue to other Herbaceous Vegetation” and “Rich Grasslands”.

Food Plots

Food plots are categorized into three types; green browse, weeds, and grain. These plots provide supplemental food that help wildlife through the winter, especially in years when trees do not produce as many nuts. This additional food source creates great places for viewing the wildlife and will help keep the wildlife from eating your landscape plants.

Green browse; plots consist of cool season grasses; Kentucky blue grass, orchard grass, or legumes; clover and lespedeza. These plants produce green plant material for the wildlife to forage on and creates habitat for birds to forage for insects. Green browse can be established in most fields successfully. Areas that receive occasional mowing; walking paths and roadsides make good green browse areas. To ensure a successful green browse plot you should fertilize and lime. A soil test will provide the necessary information regarding fertility and your local extension agent can assist you in this process.

Weed areas; consider tilling an area and planting a crop every second or third year. Light disking will allow dormant seeds to be uncovered and the weeds that re-grow provide valuable food and cover for wildlife. This is a very simple process and requires no other maintenance.

Grain plots consist of plants like corn, milo, soybeans and wheat. Good soil is required along with fertilizer and lime to improve the production of nutritious seed heads.

Glades

Glades make up another small proportion of the Village of Innsbrook and are some of the most unique and interesting features in the area.

Glades are open areas in the woods in which the soil is thin and rocky and most trees will not grow. Glades occur on very harsh growing sites, typically on a south or west facing slope at the end of a ridge.

You will find a great diversity of grasses and wildflowers in a glade. Unfortunately, many of our glades are being taken over by cedar trees, and the cedar is one of the only trees that can prosper in such a harsh growing condition.

Historically, wildfires kept cedars from establishing on glades. If your property contains a pocket of cedars and is located on a rocky slope facing south or west, you should consider girdling and letting them stand or cutting them down. If you decide to cut the cedars down you may either leave them where they fall to rot, or remove them from the glade. With the trees removed or standing dead, the glade will once again receive enough

light and allow the re-establishment of many native wildflowers and grasses that once occupied this glade.

Forest and Field Edges

The transition zone between habitat types is known as Edge. The amount and diversity of this critical habitat directly affects wildlife populations. These transition areas can provide two important things; food and cover. Natural foods found in edges would be seeds, berries, buds and green browse.

Areas where you could establish edge habitat are areas between forest and field, between two fields, bordering streams and creeks, along a fence or between your yard and the neighbors. Good edge habitat has an abundance of diversity.

Components that constitute an edge habitat:

Tall un-mowed grass; either warm season or cool season grass. Little blue stem, orchard grass, and Indian grass are good species to use.

Wildflowers or forbs; many of these plant species produce beautiful flowers during certain times of the year. Native asters, sunflowers, coneflower, partridge pea, and tick trefoil are just a few examples.

Shrubs and Vines; provide brushy cover and is another important component found in an edge habitat. Black berries, fragrant sumac, rough leaf dogwood and wild plum are commonly found in the edge.

Consider leaving a strip of grass or an un-mowed border around an open area, the tall grass and weeds will provide food and cover for wildlife. Over time shrubs and vines may naturally colonize in this area; if not you should plant these species to add to the diversity of the edge habitat you are developing.

Reforestation

Most bottomland fields in our area were originally forested and were cleared for agricultural production. Upland fields were originally forest, prairie, or savanna, or a combination of the two.

Reforestation can be a simple project and has less maintenance requirements than a savanna or prairie. The reforestation process begins with identifying species that are suitable for this type of growing condition, cottonwood, sycamore, river birch, bald cypress, and swamp oak are some species that are typical in a bottomland environment that becomes flooded or has consistently higher levels of moisture. Planting the appropriate tree species is the key to a successful reforestation plan and as the trees start to mature wildflowers that thrive in this type of growing condition will start to rejuvenate as well. In some cases it is possible to leave the bottomland undisturbed to allow nature too take its course and reforest itself.

Riparian Buffers

Along the edges of creeks and streams you will find a narrow strip of trees which constitutes the “riparian buffer.” This buffer is very important to creeks and streams; tree roots aid in anchoring soil and minimizing erosion of the stream bank. These buffers also function as filters, this increase water quality, while removing fertilizers, pesticides, and sediments from the runoff water prior to reaching the creek or stream. Riparian buffers also help shade the creek or stream that helps maintain a healthier water temperature.

When developing a piece of property, it is important to keep an adequate riparian buffer between your property and any intersecting or adjacent creeks or streams. A good formula for determining the width for an adequate riparian buffer is; leave 25 feet plus 2 times the percent of slope. For example, if the area adjacent to the creek or stream is a 10 percent slope, you would want to leave a 45 foot buffer (25' plus 2 x 10).

You may also want to consider thinning out the trees in this zone, but be sure to leave an adequate number of trees and avoid mowing in that area. Any trees you thin can be utilized as firewood. For proper thinning procedures refer back to the section on Forest, “Room to Grow.”

Landscaping

Decisions you make regarding your landscaping will have a much larger impact on the natural communities and the wildlife you love too observe. The essential requirements for attracting wildlife are; food, shelter, water, and space. With some careful planning, you can ensure that all four requirements are available on your property and attract an abundance of birds, butterflies, turkey, and other wildlife. Additionally, you will create a colorful display of flowers, foliage, and berries for your viewing pleasure year round.

Careful planning will ensure that your plantings will be successful, the maintenance requirements will conform to your time commitment, and you will avoid planting species that are invasive and create problems down the road.

Landscape Gardening & Tree Selection

The key to successful gardening whether using native plants or not, is choosing species that are well suited for the location or site. Whether planning a landscape or garden the first step is to choose the site. Every site has its own unique environment; topography, moisture, soil composition, and solar exposure are the environmental conditions but do not forget to observe the physical aspects of the site as well; utilities, underground or overhead, and structures near or with in the site, careful consideration should be given to all of these aspects.

Once you have carefully examined the site it is time to select the proper plant species. Before installing any plant material, match the plant to each site locations environmental conditions and physical aspects. To select the proper plant for your garden or landscape research the characteristics of the plant. Characteristics to consider are; solar, soil, and moisture requirements, mature size and growth rate, hardiness, flower and fruit

production, and texture of the leaves, stems, and bark. All this information will help you determine the plant species that will thrive and create a beautiful environment when planted and ultimately whether or not your planting will be sustainable and successful.

Trees are usually the most expensive plant material that is used in the landscape; this makes the planning portion even more important! When people plant a tree they expect it too be there for the rest of their life, after all they are planting a legacy. With such an investment and expectation make sure that before you purchase a tree; adhere to all the considerations already mentioned and ask a professional for advice if you are not sure about your tree selection. You can contact Keith Thompson, your local forester, or a reputable nursery for assistance with selecting a tree.

Grow Native! Gardening

A favorite hobby for many homeowners is gardening, if this describes you, then you should consider landscaping for wildlife. Such gardens can be beautiful year round and if planned correctly, offer substantial benefits to wildlife.

The Missouri Department of Conservation recently started a new program called “Grow Native”. As the name suggests, this initiative encourages homeowners to use native species in their landscaping. Landscaping with plants native to Missouri offers many benefits; the plants are beautiful, out of the ordinary, are very attractive to birds and butterflies and are also easy to care for. Native species are adapted to Missouri’s soils, climates, and insects and diseases. Native plants require little or no water, fertilizer, and the use of pesticides are virtually eliminated.

For some great information about The Grow Native! program, visit the website www.grownative.org. This site includes; photos and descriptions of many native plants, landscaping plans for “Butterfly Berms” and “Hummingbird Havens”, nurseries that sell native plants, and even lists of landscapers that can design and establish a garden for you.

Take Care with Exotics

There are many great landscape plants that do not originate in Missouri. However, there are some you should pay particular attention to when you landscape your property. These species are invasive and spread from the site where you planted them and cause unintended hardships for wildlife

One problem species is bush honeysuckle. This species produces hundreds of berries every year. Birds eat the berries and while in flight distribute the seeds in their droppings. Honeysuckle does very well in our climate and has no natural enemies. Once established, it takes over due to the dense shade underneath the shrub that inhibits the growth of native species that once occupied the site.

Bush honeysuckle has a different branching structure than our native shrubs. This structure creates problems for nesting birds, and the-low growing branch habit makes unsuspecting birds vulnerable to predators.

Fescue is another invasive plant; it is an exotic grass that is used for lawns, pasture and hay. When fescue is not maintained through regular mowing or grazing, it becomes thick with thatch and makes it virtually impossible for rabbits and quail to maneuver through for cover from predators. Once established, fescue eliminates any desirable vegetation for wildlife and leaves the field useless.

Many fescue fields originally contained native warm season grasses. Native grasses grow in clumps in contrast to the thick mat of fescue. This clump habit of growth creates a habitat very desirable to rabbits and quail; this habitat is a mix of bare ground and wildflowers that lay between the native grasses. Rabbits and quail can feed in safety and maneuver through the clumps and seek refuge from predators.

Other common invasive species include; bush and Japanese honeysuckle, Russian and autumn olive, sericea lespedeza, thistle, purple loosestrife, and fescue. For more information, see the handout “Plants that won’t stay put”.

Hobby Mowing

Having a nice lawn provides many benefits to your property. It is a great place for your children or grandchildren to play, is aesthetically pleasing, and is a great fire break from wildfires.

In most cases, ¼ of an acre is enough space for many residents’ recreation and private areas around their homes. Mowed turf has little benefit for wildlife and has a negative impact on the environment. Residents with a larger parcel of property should consider transforming unutilized lawn areas into no-mow areas for wildlife. These newly designated wildlife areas create benefits for you and the environment in which you reside; considerable reduction of your time spent having to mow, reductions in equipment fuel, oil, and maintenance, and less fossil fuel pollution being released into the atmosphere.

If you do not really require a larger yard you can attract more wildlife and help save the environment all the while reducing the time and expense of maintaining your property.

Water

Although a critical component of wildlife habitat, water is generally not in short supply throughout the Village of Innsbrook. Intermittent streams, ponds and lakes are scattered throughout the village. These bodies of water are very beneficial to wildlife, but will not necessarily bring the wildlife up close to view from your home. Incorporating birdbaths and landscaping ponds bring this essential component into your yard and will help attract birds and amphibians.

For more information on attracting wildlife, refer to page 7 of the attached handout “Landscaping for Backyard Wildlife.”

Trail Construction and Maintenance

Whether you already have a trail or are considering developing one, there are a few essential guidelines that will help you create a trail that is unique, beautiful, and easy to maintain.

Avoid steep slopes; steep slopes are hard to walk, vulnerable to erosion, and require more maintenance. When constructing trails on a steep slope, incorporate switchbacks that parallel the slope while “S” curving back and forth as you walk up or down the slope. Switchbacks reduce trail erosion, maintenance, and are easier to walk.

Use water bars; erosion on your trail can be easily controlled through the proper placement of water bars. These bars inhibit rain runoff from accumulating and washing away soil and creating erosion. Water bars are simply elevated areas in the trail placed at a 45-degree angle to divert runoff water from following the trail. Water bars should be installed any time your trail goes up or down a hill. They are easy to construct and you can either mound up soil with a shovel or use logs slightly dug into the ground, in either case the bar needs to be 4” high. The steeper the slope, the more water bars you should construct.

Mulching your trail; the use of mulch has several benefits, it can help prevent erosion and weed growth, eliminates muddy areas, allows trail usage during inclement weather, and is esthetically pleasing. Mulching an entire trail is not necessary or usually practical; the length of the trail and economics will determine whether or not you mulch the entire trail or only problem sections.

When applying mulch on a trail, install it approximately 2” thick. The amount of mulch required for the job will vary depending on the thickness; at 2 inches thick one cubic yard of mulch will cover approximately 100 square feet.

Wildlife

Nest Boxes and Feeders

Nest boxes and feeders provide additional food and cover for the various wildlife. The biggest benefactors of these structures are the people who install and monitor them. Wildlife will locate food and shelter without the help of humans, but putting up nest boxes and feeders is a great way to view wildlife.

Nest boxes and feeders come in various forms and can be purchased through local stores. If you enjoy woodworking and are searching for a project to do with your children or grandchildren you should consider building a nest box yourself. The Missouri Department of Conservation has a publication that will give you simple step by step instructions on how to build a variety of nest boxes; “Woodworking for Wildlife” offers many plans and helpful tips for construction, and the handout “Backyard Bird Feeding,” provides helpful hints on what to feed birds, and when.

Abandoned and Injured Wildlife

Every year, the Conservation Department receives hundreds of calls from caring individuals who have found wildlife that appeared to be abandoned or injured. When wildlife appears to be abandoned, the mother is usually away gathering food and will return to care for the young they left behind. Injured animals typically will recover if left alone and do a good job of fending for themselves and you can place yourself at risk when attempting to aid an injured animal.

People are not well equipped to provide care for wildlife; their young require constant care. Wildlife taken in by people rarely do well in their care and when released back into the wild have human scent that may prevent a mother from ever accepting their young again.

It is in the best interest of the wildlife if you just observe and do not interfere with the natural process. Not all wildlife is going to survive but you can greatly improve their chances by leaving them alone.

Nuisance Wildlife

Wildlife that lives near our homes can become a nuisance; they dig holes in yards, ransack garbage cans, and look for shelter in attics. Each situation requires its own intervention and there are simple steps that can be taken to avoid or remove the wildlife from the home.

Here are some examples:

- ❖ Canada Geese; geese thrive on mowed grass which gives them easy access to ponds and lakes. Consider leaving a strip of un-mowed grass around the perimeter of your lake or pond, you will create habitat in that area which is less desirable and the geese will move to a location that is more desirable.
- ❖ Pet food and garbage; avoid leaving pet food, garbage, or food scraps outside. Store pet food and garbage in metal containers with lids and place in the garage or basement. Metal containers will also keep rodents out of the food or garbage containers. If you compost, do not use any kind of meat or fish in the compost bin, this will attract stray dogs, coyotes, and other meat eating wildlife.
- ❖ If you have no inside storage for garbage or pet food you can construct a wood container to place your garbage or pet food containers in, be sure too include a lid that can be secured.
- ❖ When wildlife enters your house or burrows a hole in your lawn, wait until it leaves this shelter and block the entrance of the dwelling that the wildlife is using. You may have to perform this procedure several times, and usually the wildlife will become discouraged and search for housing elsewhere.

For more information regarding dealing with nuisance wildlife problems, browse the Missouri Department of Conservation's web site (www.missouriconservation.org). You may also call or stop by your local MDC office for more information.

Domestic Pets and Wildlife

Sometimes the pets we love can interact with wildlife in a dramatic way. It can be acutely noticeable when your dog encounters a skunk and carries that special smell for months afterward.

What people overlook is the effect that domestic pets can have on wildlife. Notably, feral cats are a specific problem in rural areas. Domestic cats when left to their own devices are very efficient hunters; they can catch and consume substantial amounts of small mammals and birds. Feral cats can reproduce rapidly, resulting in populations of hundreds of cats seemingly overnight. These "wild cats" also carry diseases that can spread back to beloved house pets.

Stray dogs also pose similar problems. They form packs and constitute a hazard to children, deer and livestock.

Be responsible pet owners. Spay or neuter your pets. Keep current on all inoculations. Always keep a collar and identification tag on them, and supervise your pets at all times. This will benefit your pet as well as you.

Where to Go to for Help

Please contact any of the professionals listed below. They are here to serve you in your endeavor to plan and implement a management practice that suits your property and you.

Keith Thompson Director of Horticulture, Innsbrook Resort
636-928-3366 x 177, email – keith.thompson@innsbrook-resort.com

Missouri Department of Conservation, Warrenton Office
(no established office hours, leave a message and your call will be returned ASAP)
P.O. Box 157, Warrenton, MO 63383
636-456-3368

Missouri Department of Conservation, St. Louis Regional Office
(established office hours M-F, 8-5)
2360 Hwy D, St. Charles, MO 63304
636-441-4554

Missouri Department of Conservation, public web page: www.missouriconservation.org

Grow Native! Website: www.grownative.org

There are many conservation contractors that can be hired to implement the best management practices found within this plan. A list of these can be found on the Grow Native website or by calling your local Missouri Department of Conservation office.