

## The Natural Landscaping Alternative: An Annotated Slide Collection

### How to Use the Slide Collection

The Annotated Slide Collection contains fifty slides selected for their ability to define natural landscaping and explain its benefits, to illustrate applications of natural landscaping, and to demonstrate installation and management techniques.

The collection has not been conceived as a "slide show" but rather as a set of slides a user can select from to develop a presentation based upon his or her own needs. As a result, the annotations below are not intended to serve as a script but to provide background to assist in the development of a presentation.

The Natural Landscaping Tool Kit includes two other useful references: <u>A Source Book on Natural Landscaping for Local Officials</u> and a poster/brochure which promotes natural landscaping and summarizes the benefits of natural landscaping.

### **Slide Listing**

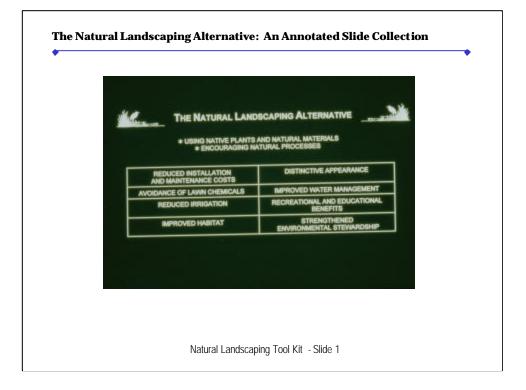
- A Foundation for Natural Landscaping (slides 1-7)
- The Benefits of Natural Landscaping (slides 8-14)
- Water Resource Management Benefits and Techniques (slides 15-25)
- The Installation of Natural Landscapes with Examples (slides 26-41)
- Controlled Burning as One Important Maintenance and Management Technique (slides 42-45)
- Additional Settings for Natural Landscaping (slides 46-49)
- What Local Officials Can Do to Encourage Natural Landscaping (slide 50)

### CREDITS

This Annotated Slide Collection was prepared by the Northeastern Illinois Planning Commission for the U.S. Environmental Protection Agency under an assistance agreement. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency or the Northeastern Illinois Planning Commission.

### **Photograph Credits**:

Andropogon Associates, Ltd. Applied Ecological Services, Inc. AT&T Butterfield Creek Steering Committee Chicago Botanic Garden Commonwealth Edison Conservation Design Forum, Inc. Illinois Department of Transportation Kane County Development Department Lucent Technologies Northeastern Illinois Planning Commission **Olympia Fields Country Club** Prairie Holdings Corporation Sears/Prairie Stone Business Park/John Buck Company Tellabs The Nature Conservancy



**THE NATURAL LANDSCAPING ALTERNATIVE:** Natural landscaping, often called native landscaping or even beneficial landscaping, emphasizes the use of native plants and natural materials in landscaping. These natural landscaping techniques have numerous advantages over conventional turf grass lawns and highly engineered site management techniques.

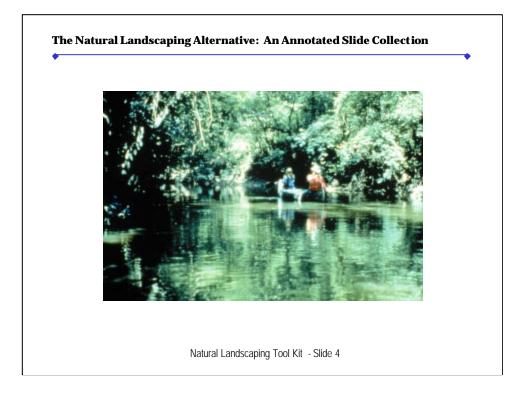
Natural landscaping is based upon natural attributes and natural processes which result in: (1) reduced landscape installation and maintenance costs; (2) avoidance of the use of lawn chemicals such as fertilizers and herbicides; (3) reduced or eliminated costs for irrigation systems; (4) improved habitat and increased biodiversity; (5) distinctive and attractive sites; (6) improved water quality and reduced damages from stormwater; (7) improved outdoor recreation and education opportunities; and (8) strengthened stewardship of the environment by people.



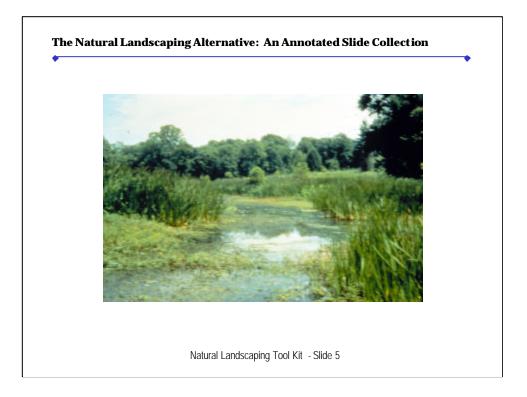
Ecological restoration is not a typical objective of natural landscaping. However, the remaining high quality prairies that have been preserved in the Midwest give us an indication of the natural heritage that has been lost and what plants can be expected to have superior performance in our region as an alternative to conventional turf.

# <section-header><section-header><section-header><section-header><image><image>

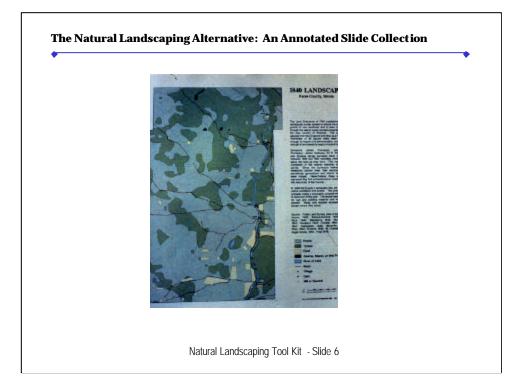
Historically, the Midwest contained both prairies and forest, often with "islands" of oak groves (attractive places for settlement, hence Morton Grove and Downers Grove) and transitional areas called savannas that were maintained by intermittent prairie fires. Property owners should attempt to preserve remnants of oak groves and may chose to restore the delicate and beautiful oak savanna ecosystem.



In a region with relatively flat topography, streams and lakes are often the most prized landscape amenities. Too often they have been exploited and ruined by development that has not been sensitive to the biological requirements of these habitats. Natural landscaping can restore these features to a more attractive and functional condition.



Most of the wetlands of the region have been drained for agricultural and urban uses. With continuing development trends, lowland sites containing wetlands that were originally passed over are now subject to development pressures. Innovative developments are designed to recognize that the wetland can increase the aesthetic appeal of a site and also serve as part of the stormwater detention system.

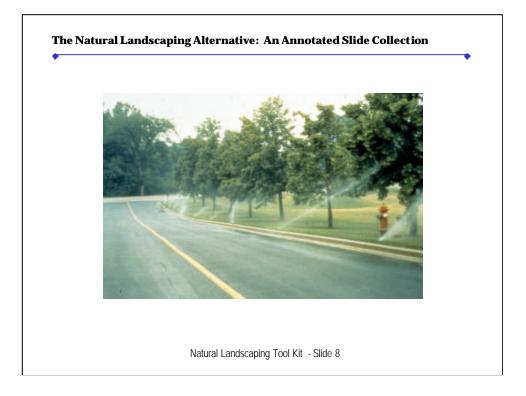


A knowledge of conditions prior to the region's settlement in the mid-1800's can provide a good foundation for the planning of natural landscaping. Soil maps provide indications of the natural communities existing at that time. In addition, surveyor's records and other historical documents provide clues to what plants and ecosystems were present. Agricultural and urban development practices have often altered hydrologic and soil conditions, but these can sometimes be partially restored through site development.

This map of Kane County, Illinois, based on historical records, portrays the distribution of prairie, timber, fields, wetlands, and water bodies existing during the early 1840's.



While it is not possible to return to pristine natural conditions, natural landscaping can emulate such conditions and can provide a richness and diversity of plant material far exceeding what would be planted through conventional landscape design. On a single site, it may be possible to provide upland prairie vegetation which contrasts with wetland and riparian habitats installed as part of a natural drainage and stormwater system.



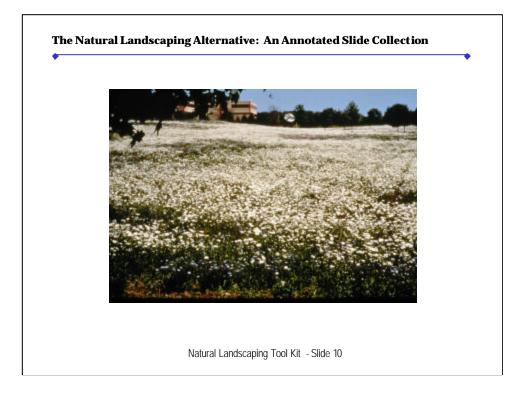
Natural landscaping provides multiple environmental and economic benefits which accrue over time. Complex and expensive watering systems as seen in this photo are not necessary. Similarly, mowing costs and the use of fertilizers and herbicides are vastly reduced or eliminated. Resources are saved and costs are reduced.



While installation and maintenance costs for natural landscaping can vary considerably, the cost savings are especially significant after the landscape is established. The maintenance costs remain very low over time. The cost of the annual maintenance of the prairie grasses and forbs includes a potential \$1000/acre cost in the early years of the installation for weed removal.

The slide compares the seeding of traditional Kentucky blue grass with seeding of prairie grasses and forbs. Installation costs for Kentucky blue grass <u>sod</u> would be much higher and the <u>hand planting</u> of native <u>plants</u> would also be higher than seeding.

Different practitioners have had different cost experiences but these figures are representative. The use of volunteer labor for installation and maintenance of natural landscapes can obviously provide major cost reductions.



Richness of texture and changing colors are aesthetic benefits that make natural landscapes appealing and interesting. Natural landscapes will change over the years as the plant composition adjusts to specific site conditions. Often short-lived but showy species are included in the initial planting mix to give a dramatic first impact. Later, the plants which take longer to become established begin to dominate.

Natural landscapes maintain a strong visual interest throughout the seasons. Plants are in flower at different times, creating a multi-season floral display. Even in winter, the colors of native grasses, seed pods, and other plant materials are more interesting than brown turf grasses and unrelieved expanses of snow.



Richness of texture and changing colors are aesthetic benefits that make natural landscapes appealing and interesting. Natural landscapes will change over the years as the plant composition adjusts to specific site conditions. Often short-lived but showy species are included in the initial planting mix to give a dramatic first impact. Later, the plants which take longer to become established begin to dominate.

Natural landscapes maintain a strong visual interest throughout the seasons. Plants are in flower at different times, creating a multi-season floral display. Even in winter, the colors of native grasses, seed pods, and other plant materials are more interesting than brown turf grasses and unrelieved expanses of snow.



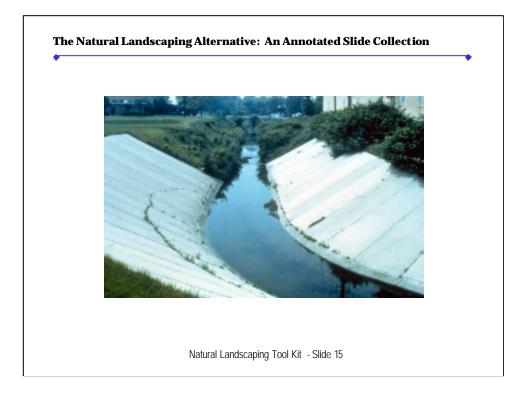
The use of natural landscaping allows the property owner to create a distinctive look which creates an identity that is important to the property owner, or renter, and the real estate broker. The appearance of a naturally landscaped site contrasts with the sameness of conventional landscaping and can display the vegetation that was originally characteristic of the area.



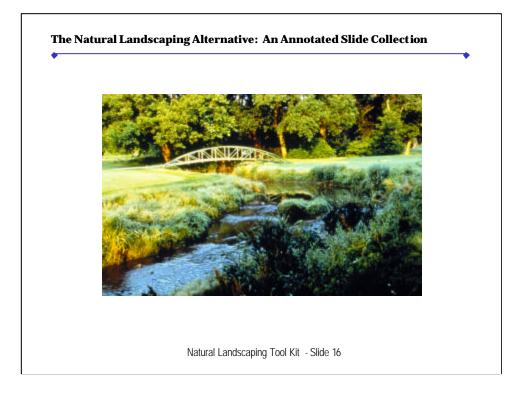
While few natural landscaping projects could be characterized as ecological restoration, the introduction of multiple native plant species provides improved habitat supporting increased biodiversity, including butterflies, birds, as well as aquatic plants and animals. Such areas are valuable in themselves, but they also can provide buffers around more sensitive natural areas. In addition, they can restore continuity of habitat that has been lost through the fragmenting impacts of urban development.

# <section-header><section-header><section-header><section-header><section-header><image><image>

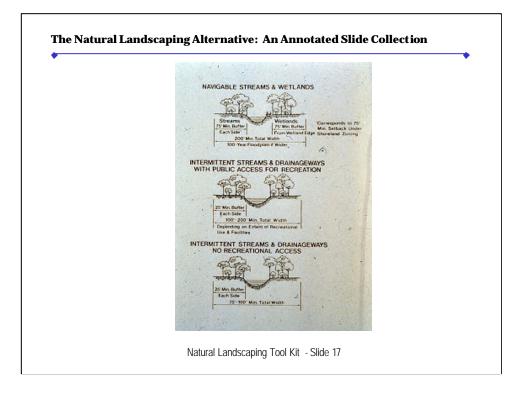
Natural landscaping projects provide excellent opportunities for teaching young people and adults about ecology, the relationships between nature and their daily environment, and about the responsibility for managing the environment appropriately. A wide range of organizations and public jurisdictions organize volunteers for installation and maintenance of natural landscapes and for ecological restoration. Schools at all levels use the planting, maintenance and monitoring of natural landscapes as a valuable hands-on approach to teaching ecology, biology, and natural resource management.



Conventional solutions to flooding and erosion problems have often involved highly engineered approaches which have damaged the water and riparian resources and created expensive-to-maintain channels. Channelized streams can accelerate water flows, increase downstream flood and erosion and eliminate all natural attributes of the stream, along with its recreational and aesthetic potential. Natural landscaping can address the problems while preserving and enhancing the resource.



Erosion-prone streambanks can be effectively managed in a way that the stream corridors becomes an asset to the properties around it. This problem stream through a high quality golf course has been managed through natural landscaping. Native vegetation has been installed to control erosion and manage runoff. The stream has been well-integrated into the aesthetic of the country club.



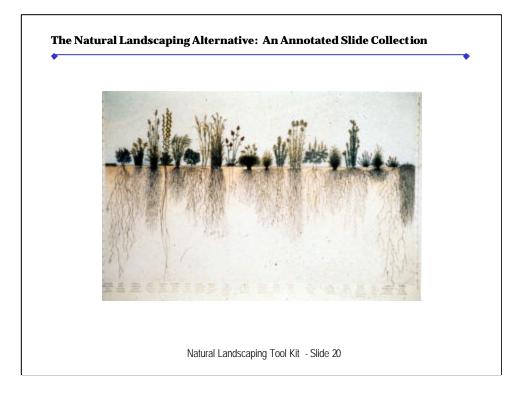
Local governments can use guidelines or standards incorporated into a stream protection ordinance to protect stream corridors. This requires the preservation of a natural vegetation buffer strip (usually a minimum of 25 ft.) and the strict regulation of structures and impervious surfaces for a specified distance outside the buffer strip. Such ordinances should encourage the planting of native vegetation within the protected area. The width of the regulated area should be tailored to local conditions, depending upon such factors as width of the stream, width of the floodplain and floodway, existence of especially high quality habitats, and whether or not the stream corridor is intended to accommodate recreational trails.



Drainage swales landscaped with native vegetation help direct, slow and purify stormwater before it enters wetlands or bodies of water. The native vegetation can withstand high water velocities and requires little or no maintenance once established.

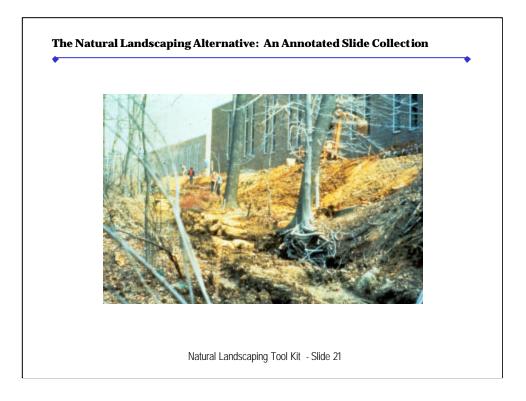


Directing stormwater flows through stormwater systems consisting of swales, wetlands and detention areas designed to improve water quality and provide habitat are very effective in reducing suspended pollutants that have originated from parking lots, streets, lawns, agricultural operations and other land uses.

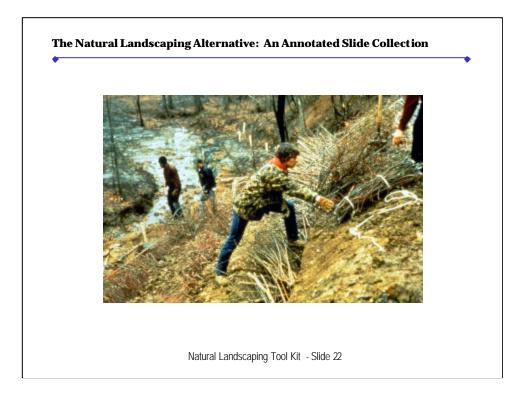


Native prairie plants typically have deep and extensive root systems which help them survive dry conditions and which effectively hold soil. By comparison cool season turf grasses, such as Kentucky bluegrass at the far left in the photograph, have very shallow root systems which are much less effective in controlling erosion and withstanding severe drought.

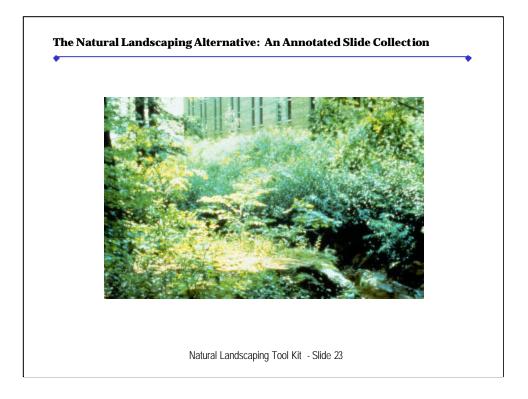
The prairie root systems are a major part of the biomass provided by prairie vegetation. Through photosynthesis these plants use carbon dioxide to create complex hydrocarbons, thereby enriching the soil and reducing the "greenhouse effect" of carbon dioxide.



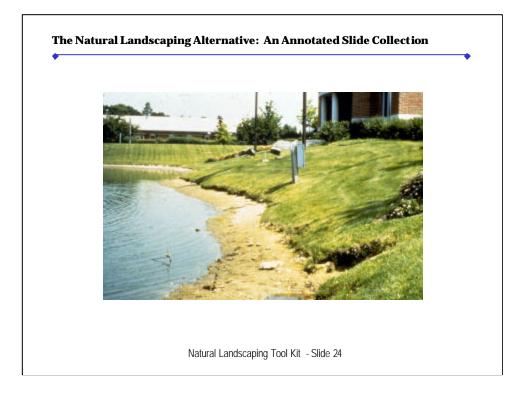
"Soil bioengineering" is the name applied to a group of techniques which involve the installation of plant materials in a manner that prevents and avoids bank erosion. In this photograph a streambank has become severely eroded. Dense tree cover has probably shaded out grasses and other plants that could hold the soil.



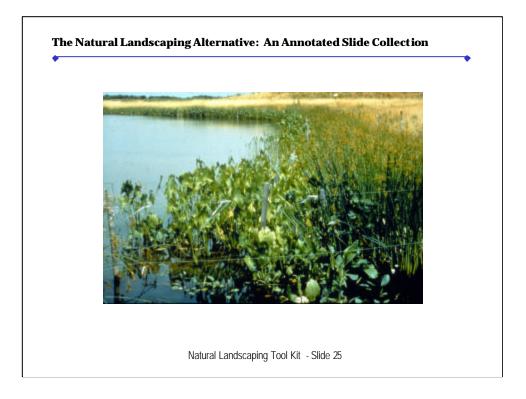
Fascines, bundles of live but dormant willow shoots, are planted in the streambank in early spring. Layers of fascines are installed up the bank, each layer covered with soil.



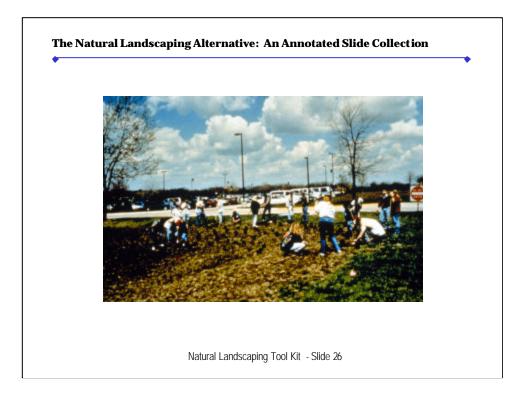
Within just a few weeks the willow begins to sprout root systems which rapidly "solidify" the bank against the erosive forces of the stream. The willows leaf out, improving aesthetics and habitat conditions.



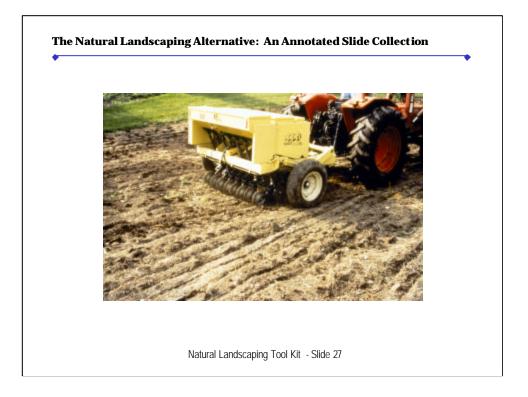
Traditionally designed stormwater detention ponds either have unattractive riprap banks or banks landscaped with conventional turf that erodes. Such basins are unattractive, costly to maintain, do not improve water quality and do not provide habitat.



Alternative detention basin design mimics the attributes of natural ponds. Gentle side slopes and installation of native vegetation provides a more natural edge which prevents erosion and suspension of sediment and intercepts pollutants from runoff. This alternative is easier to maintain, more aesthetically pleasing, and less hospitable to Canada geese which often become pests around lakes and ponds.



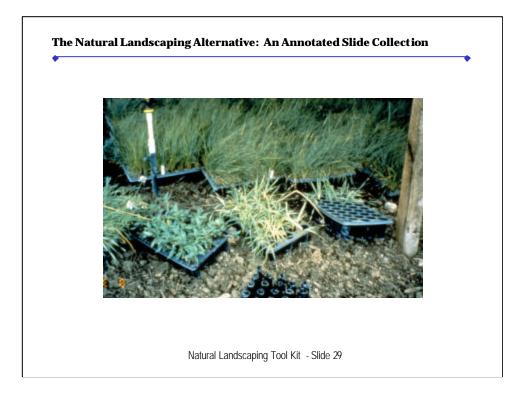
Volunteers and students are often eager to assist with the installation and maintenance of native landscaping. This is especially useful in reducing costs and instilling a sense of environmental stewardship. The use of volunteers and students is usually most practical with projects of a small to medium scale. Seeds can be broadcast or plants grown in plugs can be planted and watered, if necessary.



In larger scale projects, such as institutional settings or corporate campuses, mechanical equipment is used to plant seeds of prairie grasses and forbs. The project consultant will advise the client on the appropriate mix of seeds based upon site conditions and aesthetic considerations. The use of experienced professionals is especially important on large projects where mistakes concerning the quality, mix and correct planting of seed could have significant economic consequences.



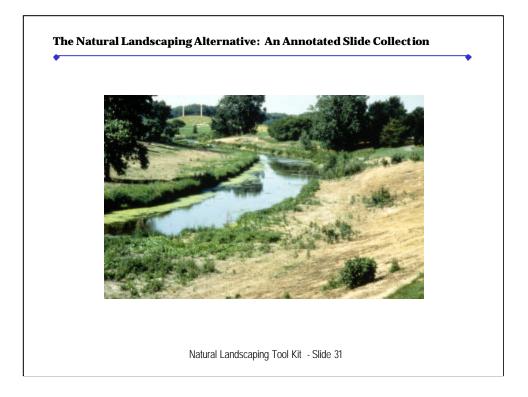
Seeds planted mechanically will germinate depending on species characteristics and moisture requirements. Sometimes sites are watered at this stage to ensure germination under dry conditions. Most prairie plants concentrate on developing root systems the first three years and do not make a dramatic appearance above the soil. That is why a seed mix which includes some rapidly growing, showy species is a good strategy. During the first several years, attention must be given to removal of weeds that will inevitably appear.



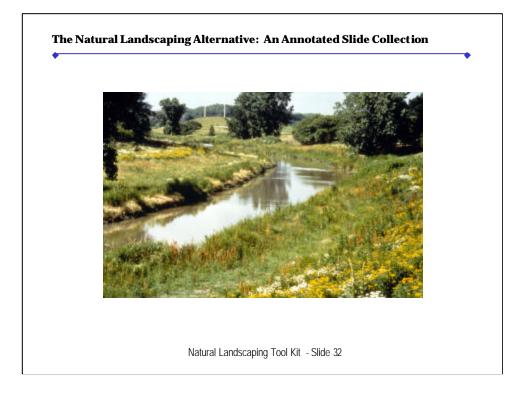
Planting plugs of live plants is very effective in strategic locations. The cost of plugs is, of course, much greater than the cost of seed but the results are faster and more conspicuous. The task is also much more labor intensive. Projects that have access to volunteers help may be in a particularly good position to plant plugs. Such projects also require an experienced professional who can assure that the plant materials will be appropriate, healthy and available when needed. Large scale natural landscaping projects frequently use plants in strategic locations which have high visibility.



This specimen of prairie cord grass has been removed from a streambank erosion project to demonstrate that in only a couple of weeks these grasses begin to send out roots that help hold soil and rhizomes which are the plant's primary means of propagation.



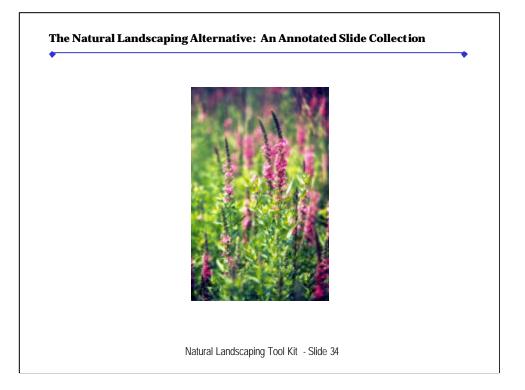
This photo and photo #32 illustrate the progression of a stream corridor restoration project. In this photo exotic weeds and grasses have been killed with a properly applied herbicide, avoiding areas close to the stream. Later the corridor was graded in select locations to create "perched" wetlands resembling "oxbows" resulting from natural changes in a stream course. In some locations eroding banks were also resculpted in preparation for planting.



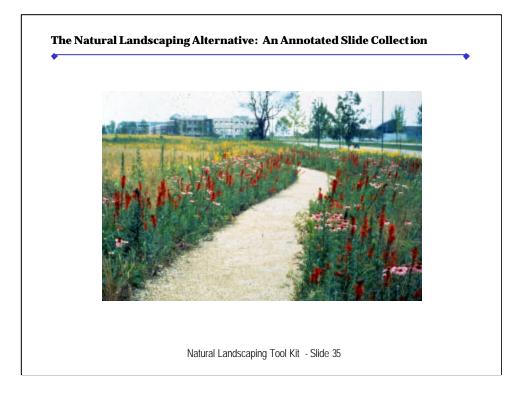
This photo was taken one year later at the same location. Prairie plants that were seeded are growing vigorously in the corridor. The wetland plants planted in the oxbow wetland are doing well. To control shoreline erosion, prairie cord grass was planted in the banks. At certain locations, rolls of coconut fiber about 1 ft. in diameter, were staked into the foot of the bank for additional stabilization. The rolls themselves were then planted with native plants. Boulders were placed in the stream to enhance the creation of pools and riffles to provide improved habitat and water quality.



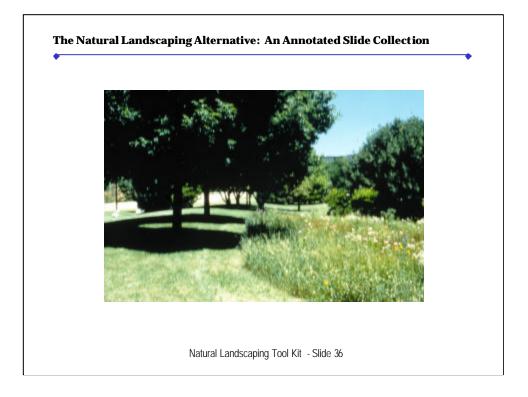
It is sometimes important to emphasize what natural landscaping is <u>NOT</u>. Natural landscaping does not mean letting areas grow up in weeds or allowing hayfevercausing plants like ragweed to go uncontrolled. Natural landscapes are managed landscapes. In addition to not being a cause of allergies, natural landscapes do not attract vermin, nor do they aggravate mosquito problems.



There are serious problems with aggressive exotic plants which can crowd out more beneficial native species. State laws are in place which prevent the sale of the worst of these species. Nevertheless, they are out in the environment and may threaten existing natural areas and natural landscaping projects. The plant in the photograph is purple loosestrife which, while very attractive, is extremely prolific and can become the dominant plant in wetlands. Purple loosestrife should be removed by hand or with careful, selective, professional application of pesticides that are approved for use near water. European buckthorn and garlic mustard are other species that are causing major problems in the region.



Natural landscaping should be carefully integrated into the overall site plan. Many corporate campuses featuring native plants provide walking paths which allow an up-close appreciation of the vegetation and a pleasant place for employees to relax.



Most natural landscaping projects involve a combination of traditional and natural areas. A common technique is to set back the natural landscaped area. Some local regulations require this.

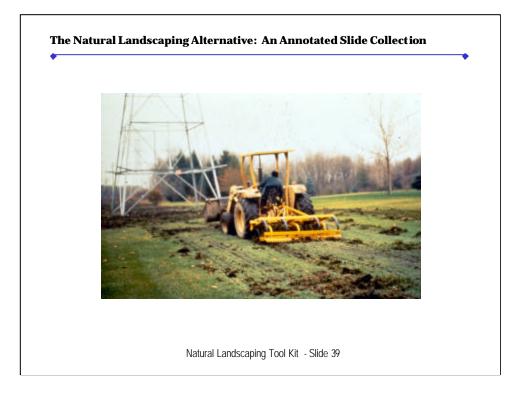
In addition, natural landscaping may be the primary treatment on the less public parts of the site while the more formal entrance areas and areas near the buildings are treated in a more traditional fashion. In contrast, some corporations have reversed this approach, making highly ornamental use of native plants in very prominent locations as a part of their environmental "message" and their championing of innovative landscape design.



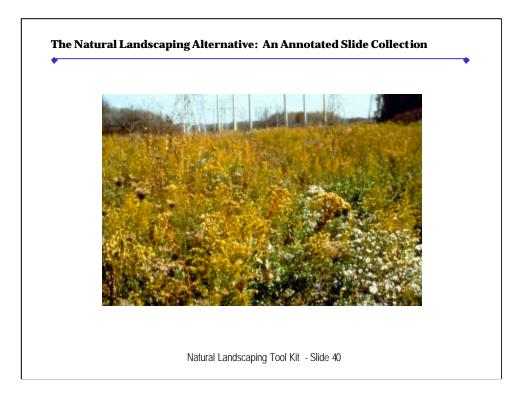
A common technique is to set back the naturally landscaped area from lot lines, roadways, walks and more traditionally landscaped areas. This appeals where the landowner is concerned that adjacent property owners or site visitors expect the "tidy" look associated with conventional landscaping. Some municipal weed ordinances require such setbacks from streets and property lines.



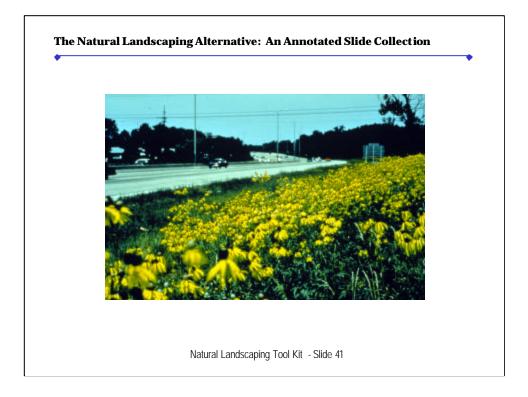
For people who want to use native plants and yet want to retain the look of conventional landscaping, one solution is the use of native buffalo grass. Buffalo grass is native to the western plains. It maintains its green color all summer long and does not grow more than about six inches in height. It does take longer to come out of dormancy in the spring and becomes brown earlier in the fall than traditional cool season grasses.



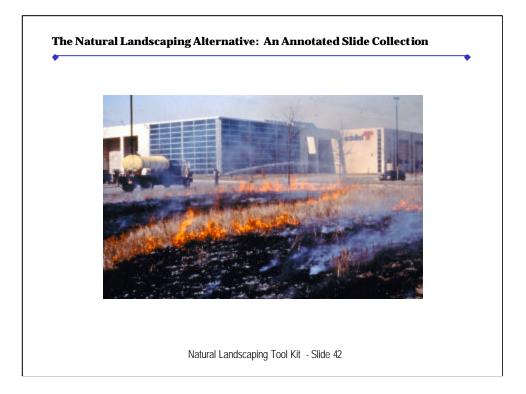
Rights-of-way are logical and very desirable locations for natural landscaping. The continuity of ownership simplifies installation and maintenance. The costs of maintaining the right-of-way can be significantly reduced. In Illinois, Commonwealth Edison has begun a natural landscaping program along several right-of-way segments within the Chicago metropolitan area and at power generating facilities. Shown here is the planting process at one of the demonstration locations.



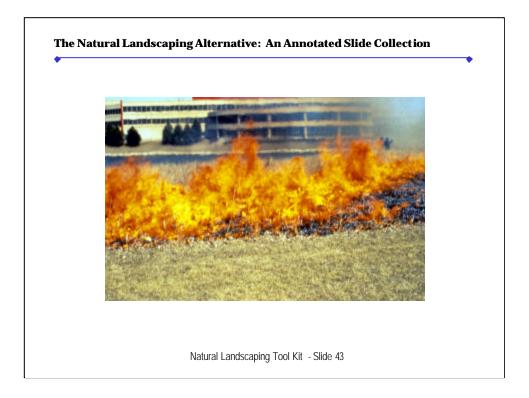
This photo shows the attractive result of the utility right-of-way project.



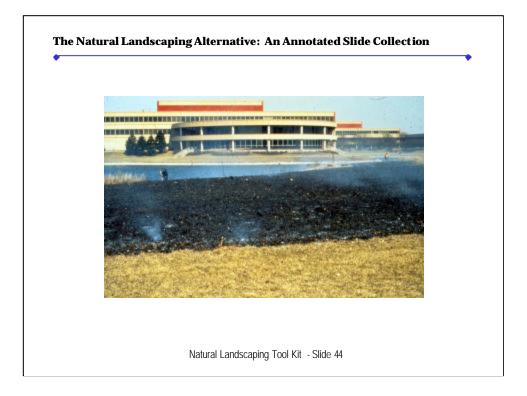
The Illinois Department of Transportation (IDOT) also supports natural landscaping within roadway right-of-way. For cost savings reasons, the Department has reduced mowing in many locations. In others, the Department has strategically planted native prairie seeds. The Department works cooperatively with local organizations that are willing to be sponsors of projects along segments of state highways.



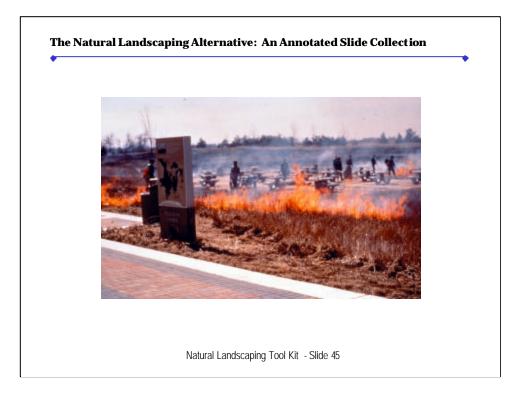
Annual burning of prairie vegetation is an important management technique. In Illinois, burning requires a permit from the Illinois EPA. Local fire departments should be notified and may want to be present. A burn should be administered by trained personnel operating under appropriate weather conditions. Many of the public jurisdictions, such as forest preserve districts, and private conservation organizations involved in ecological restoration activities have expertise in how to conduct a controlled burn.



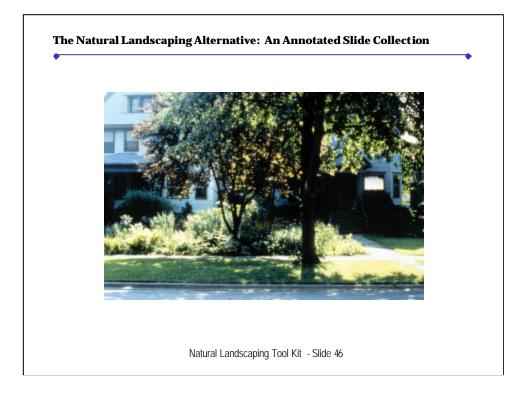
A controlled burn can be a rapid and dramatic process providing a hint of what early prairie fires must have been like. Volunteers are eager to help with controlled burns because it allows them to participate in recreating a natural process that has been suppressed by urban development. This recreated natural process is essential to the vitality and integrity of prairie-style natural landscaping.



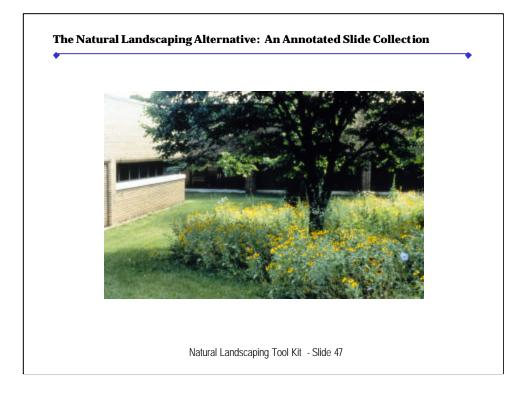
A few minutes following the burn, the site has changed dramatically. Within a few days, however, the process of rejuvenation becomes apparent as green vegetation reappears. The heat of the fire has numerous benefits, including assisting prairie plant seeds germinate and suppressing non-native weeds.



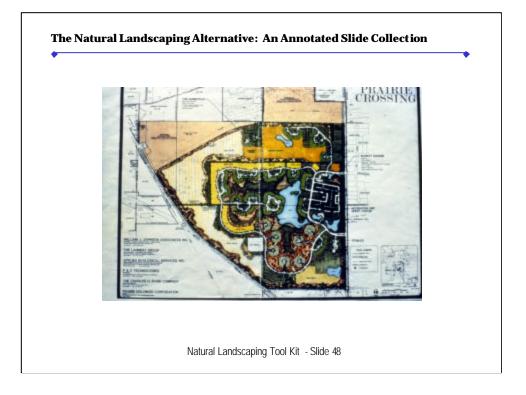
If conducted properly, a controlled burn can be undertaken near buildings and public areas. This photo shows an employee picnic area which has been constructed within a natural landscape setting. The burn occurs around the picnic area. Signage is useful in explaining the natural landscape project and the management approaches that are used to maintain the site.



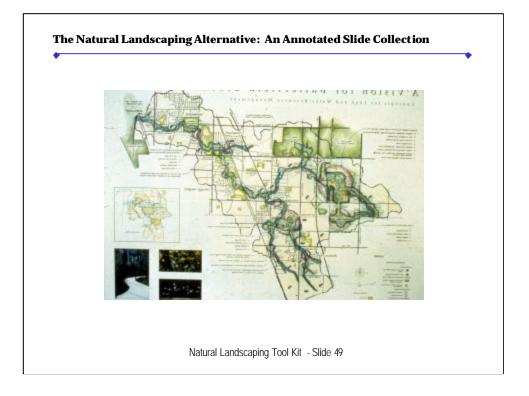
Urban gardeners are increasingly interested in emphasizing native plants in their yards. Such gardeners may participate in programs designed to increase the propagation of scarce native plant species and to increase the availability of seed. Natural gardens reduce the amount of turf and the maintenance it requires. Natural gardens provide variety to the urban landscape and attract butterflies and birds. Avoidance of landscaping chemicals is particularly appealing in areas with concentrations of people and children. This natural garden was created by two adjacent lot owners who converted their adjoining side yards into one garden space.



Schools provide excellent settings for natural landscaping because school curricula regarding biology, ecology, and environment can be structured around a hands-on, on-site project that can be installed and managed over time. The school grounds benefit from a more distinctive appearance and the school district budget is relieved of groundskeeping costs. The same concept can be applied to parks. Municipalities and park districts can sponsor natural landscaping projects in order to provide the multiple benefits, including the opportunity to offer nature programs oriented towards natural landscaping.



More extensive benefit can be achieved from natural landscaping as the development industry begins to recognize the value of this approach. The Prairie Crossing development in Grayslake, Illinois features large areas of restored prairie and meadow around clustered housing. In addition, the stormwater management system utilizes natural processes to filter stormwater through swales, wetlands and into detention lakes with a naturalistic design. The "natural" approach is a major marketing theme for the development.



On a larger scale, comprehensive watershed planning can support local programs that use and benefit from natural landscaping. The "Vision for Butterfield Creek" developed by the Butterfield Creek Steering Committee in south Cook County, Illinois provides a comprehensive framework. The plan calls for stream restoration, streambank stabilization using soil bioengineering, construction and retrofit of stormwater detention basins that provide natural water quality improvement benefits, wetland restoration, and the use of natural landscaping. At an even larger scale, Butterfield Creek is recognized as a regional greenway in the <u>Northeastern Illinois Regional Greenways Plan</u> adopted by the Northeastern Illinois Planning Commission.



Local officials are in an excellent position to encourage natural landscaping in their community:

- a. Local government (especially municipalities, park districts, and school districts) can take the initiative to use natural landscaping on public property -- local parks, municipal buildings, public golf courses, and local roadway right-of-way to name a few examples.
- b. Local government can examine the local weed ordinance and update it or replace it with a new ordinance which will encourage private property owners to use natural landscaping
- c. Local government can sponsor and encourage natural landscaping demonstration projects in an effort to show how natural landscaping looks, functions, and is maintained.
- d. Local governments have many opportunities to provide educational materials and information regarding natural landscaping. These may include formal seminars, distribution of literature, articles in newsletters, and provision of technical assistance to property owners.