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Scouting the Landscape Environmental Stewardship

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- Slide 1 Scouting the landscape—
We'll discuss the objectives and steps to implement a scouting program. This presentation will show the tools and methods necessary for scouting a landscape.
- Slide 2 A good Integrated Pest Management, IPM, program will help you save money, time, chemicals, and energy in effectively controlling pests while protecting both the environment and beneficial organisms in the landscape.
- Slide 3 It's a real jungle out there. Where do you start in your scouting program?
- Slide 4 Begin with wise plant selection. Some plants are more susceptible to problems than others. Your scouting program will begin by knowing the landscape and those plants in it which are most suitable to the site or most susceptible to plant diseases and insects. Part of your scouting program may be recommending the removal of certain plants and adding more resistant, better-adapted, native and native-like plants.
- Slide 5 There are several important objectives in a landscape monitoring or scouting program. First, you want to reduce the amount of pesticides used in the yard or landscape.
- Slide 6 Scouting can help achieve better control of pests with fewer pesticide applications. Remember, insects can quickly develop resistance to overused pesticides.
- Slide 7 It is the objective of IPM to control pests, but only while protecting the naturally occurring beneficial organisms.

- Slide 8 Scouting allows you to make timely and appropriate pest management decisions. This may include selecting cultural practices, introducing beneficial insects or deciding when, what type, and how much pesticide to apply.
- Slide 9 The use of fewer pesticides helps in maintaining water quality.
- Slide 10 And reducing the health hazards for people and the environment.
- Slide 11 Aesthetics are important to homeowners and commercial clientele. You should maintain an attractive landscape in an environmentally sound manner.
- Slide 12 Keep in touch with what is going on in the yard or landscape.
- Slide 13 Early detection and treatment will require fewer chemical applications or alternative treatments such as soaps, oils, and other bio-controls...
- Slide 14 The end result of scouting for commercial pest managers is to reduce costs and increase profits while providing effective pest control.
- Slide 15 Scouting achieves optimum results if a few simple steps are followed. First, collect the scouting equipment that is needed for inspecting the yard or landscape.
- Slide 16 A hand lens or photographer's loupe of at least 10x magnification is an absolute necessity for looking closely at insects, their egg cases, or disease symptoms.
- Slide 17 Purchase a good quality hand lens.
- Slide 18 Make a map of the yard or landscape. You need twelve copies (one for each month of the year) for recording the locations of problems and activities that take place within the landscape such as diseases, insects, droughts, freezes, etc. This is a critical component of your record-keeping system.
- Slide 19 Make a simple landscape map. Include the plants, hardscape, buildings, and other features that will affect good IPM.
- Slide 20 You'll need a clipboard, copy of the yard map, and a pencil to record changes that have occurred.
- Slide 21 Choose a sturdy professional clipboard.
- Slide 22 Traps help to monitor insect populations and control small infestations.
- Slide 23 Yellow and blue sticky cards and pheromone traps may be used to trap and monitor insects.
- Slide 24 Pheromones, or insect sexual attractants, lure adult male insects into traps. Trapped insects indicate the presence of pests.
- Slide 25 Yellow sticky cards are good for detecting the presence of white flies in the landscape, like the one on these roses. They can help to control small infestations and monitor the presence of white flies and other insects in the landscape.
- Slide 26 Blue sticky cards attract thrips in the same way that the yellow cards attract white flies. Place them in the landscape where you find aphids and thrips. Replace the cards as needed. Periodically count the number of insects on the cards or in pheromone traps to follow changes in insect populations. This will help you determine if the population is increasing, decreasing, or is static.
- Slide 27 A permanent marker and plastic ribbon should be included in your toolbox so that infested plants can be marked. If an infestation is found, a dated notation on the ribbon attached to the plant will be a reference point for the next time you scout the landscape.

- Slide 28 Select a colorful plastic ribbon to mark an infestation so that you will not miss the pests the next time you scout the area. As well, a bright ribbon identifies infested plants for spot treatments.
- Slide 29 You'll need collecting bags and bottles to hold specimens for identification.
- Slide 30 (Picture of bottles and bags.) Proper identification of pests and beneficial organisms is important in order to make accurate control decisions. For correct identification, take samples to you nearest Nevada Cooperative Extension office. Make sure the samples are fresh and have not set in a hot car or truck.
- Slide 31 As a diagnostic tool, pH test equipment is important in IPM. The least expensive and yet reasonably accurate is the pH test strip.
- Slide 32 pH test strips can give you an idea of the pH range of the soil and water in the landscape.
- Slide 33 Stress-detection glasses are useful for determining which plants are under stress and possible attack by pests.
- Slide 34 Stress-detection glasses look like violet-colored sunglasses.
- Slide 35 Plants that are under stress will appear a lighter color as shown here.
- Slide 36 Use sweep nets to collect flying insects...
- Slide 37 A sweep net is easy to use.
- Slide 38 A soil probe will allow you to monitor soil moisture, compaction, layering and root health.
- Slide 39 The probe should be inserted into the upper 6 to 12 inches of soil.
- Slide 40 Examine the soil for moisture, plant roots and other potential problems.
- Slide 41 A soil thermometer will allow you to monitor soil temperatures associated with pest activity; as the soil temperature increases, so does the pest activity.
- Slide 42 Use a soil thermometer in lawns and planting beds.
- Slide 43 An aspirator is useful for collecting small insects for identification.
- Slide 44 There are two types available--battery powered...
- Slide 45 ...And those that are mouth operated.
- Slide 46 Gather identification and reference materials that will help you in your scouting program.
- Slide 47 Many useful books and flashcards and other references are on the market for identification of diseases, weeds and insects in the landscape.
- Slide 48 Select current materials from reputable sources to make sure their information is sound and up to date.
- Slide 49 One of the handiest tools for landscape scouting is the set of plastic-coated flashcards. They are water-resistant and can be easily carried in your toolbox or pocket with other scouting equipment.
- Slide 50 Include in your toolbox a beating sheet to collect crawling pests on plants.
- Slide 51 Place the beating sheet under the leaves of the plant and tap or shake the branch or plant to dislodge the pests onto the sheet. This helps you know whether or not a pest is present on the plant. You can also use the sheet to collect insects for identification.
- Slide 52 Include these simple, inexpensive tools in your toolbox.
- Slide 53 The toolbox and other equipment you have just seen are readily available and easy to assemble.

- Slide 54 Consider the following steps to achieve good environmental stewardship in the yard or landscape using IPM. First identify and inspect key plants for pest problems. Key plants are those that are prone to pest infestations.
- Slide 55 For example, checking roses can monitor aphid infestations and find them early. Aphids are attracted to new growth on roses and many other plants.
- Slide 56 Know which plants in the yard or landscape have a tendency toward certain problems during particular times of the year. This is why you map and calendar will be handy after the first year.
- Slide 57 Here is a partial list of key plants and their related pests. Certain plants have a tendency to have a more frequent infestation of insects and diseases. The following is a list of the key plants that need to be inspected for insect problems. Roses, tomatoes, willows and ash are susceptible to aphids. Cherries, plums, and pines are vulnerable to bark borers. [*Comments could be made about each one.*]
- Slide 58 A disease that is commonly found in poplars and willows is Cytospora canker. Roses, euonymus, apples, grapes and Cottonwoods are prone to powdery mildew. Hawthorn and ornamental pears include fireblight. Maples, catalpa, and other ornamental trees may lose limbs or die outright from Verticillium wilt disease. Elms, willows and cottonwoods have wet wood. [*Comments could be made about each one.*]
- Slide 59 As you scout the landscape, always check your key plants.
- Slide 60 You might want to attach yellow or blue sticky cards, or pheromone traps, to key plants to obtain an idea of the number of pests present. If there is a low infestation, there may be no need to do anything in the landscape. The damage tolerance level should be high unless it is an area that requires pest-free plants.
- Slide 61 Remember that there are many natural predators that will take care of small infestations without a pesticide application. Always check to see if there are any beneficial insects present such as this praying mantis. If unnecessary pesticides are used, predators will be killed, allowing population or infestation to increase even more rapidly.
- Slide 62 Look at the plant parts where you expect to find certain pests. For example, aphids are commonly found on new growth, spider mites on the underside of older leaves, and white flies in the middle of the canopy. Always check under the plant in the mulch and leaf litter and probe the soil for grubs and other pests.
- Slide 63 As you look through the plants, carefully examine the underside of the leaves.
- Slide 64 Besides insect problems, there are other common difficulties that key plants in your landscape might face. These may include disease, drought, fertilizer burn and mechanical damage from lawn mowers and weed eaters. Or just older leaves or needles that are naturally dying. [*Comment on some of those shown.*]
- Slide 65 Pest infestations are generally seasonal, but may re-occur during the growing season. Weather conditions and management practices affect the redevelopment of pests.
- Slide 66 Keeping good records of what happened in previous years is essential to a good scouting program, especially on a commercial level; be sure to include weather data.
- Slide 67 Always make sure that you identify the plants, and the insects or diseases properly.
- Slide 68 If a determination cannot be made immediately on whether or not an infestation is serious, the plant may be tagged, labeled, dated and checked within a few days to a week's time to see if the problem is getting better or worse.
- Slide 69 Always clearly mark infested areas or plants with the date, the pest, and how many are present. Use a permanent marker that does not fade in the sun or use a #2 pencil.

- Slide 70 First determine is there any pest organisms in the landscape and whether or not there are any beneficials present.
- Slide 71 What is the extent of the problem? How many plant are affected? Is this a new or long-standing problem? What is the number of pests per sample? Is there a pattern in the landscape? Is the damage done? What can you Do? Will the next flush of growth cover it?
- Slide 72 Does the damage exceed tolerable levels? A decision can be made based on the resources available and the expectations of the clientele. The management options will be determined by these two factors.
- Slide 73 Is the population building? Are there numerous eggs and juveniles?
- Slide 74 Is it static?
- Slide 75 Is it declining? If so, are there mostly adults present? Is most of the damage done? This may take several days to several weeks to determine. Once it has been determined which stage the population is in, then a decision on whether not to start measures, including spraying, can be made.
- Slide 76 It is very important to correctly identify the problem. This rose leaf has an infestation of aphids and other insects on it; but the ladybugs are eating the aphids. These beneficials are taking care of the problem, and spraying with a pesticide is unnecessary and will harm the ladybugs.
- Slide 77 This plant has what looks like a disease or perhaps a serious insect infestation. In reality, it is simply a gall produced by an eriophyid mite. This is not detrimental to the plant.
- Slide 78 One of the easiest ways to tell whether or not there are mites on a plant is to take a mite beater sheet or white sheet of paper and tap the stem or branch over it; then look to see if any specks fall onto the paper and move.
- Slide 79 Sooty mold is a nasty-looking problem. However, it is actually indicative of an insect problem. In this case, sooty mold grows on the honeydew secreted by the aphids attacking the leaf of the plant.
- Slide 80 A hand lens helps identify and distinguish between plants problems.
- Slide 81 When deciding which pest control measures should be used, it is wise to first choose those that are least toxic.
- Slide 82 For example, the larvae of wasps such as this one feed on other insects such as aphids, leaving the aphids mummified. When you observe this, don't spray.
- Slide 83 When predators are used for control, it is important to tag plants and check them again to see what the population is doing. Also, to avoid killing the predators, do not spray tagged plants with pesticides. Let them do their job! It's cheaper and less time consuming.
- Slide 84 If biological controls are not effective, then use the least toxic method of control you can find. Soaps, oils, BT's and Neem will cover a broad spectrum of insects. Diatomaceous earth and other Biorational products can also be effective.
- Slide 85 Mix only enough pesticide to treat the infested areas. Do not mix large amounts unless a large area is infested.
- Slide 86 It is necessary to follow up to see how well the control methods have worked.

- Slide 87 Mechanical and cultural controls can be useful in the yard or landscape. Overuse and dependence on chemical pesticides is not wise. If pesticides are overused, pesticide resistance will develop. Overuse of certain pesticides can cause flare-ups of other pest populations. For example, overuse of Sevin for aphids and caterpillars can cause the mite population to escalate. Be sure to use climatically adapted plants and plant the right plant in the right place. Always fertilize and water wisely. Avoid hedging most plants and improperly pruning. Of course, do not over use pesticides. And choose plants that provide pollen and nectar for predators.
- Slide 88 Remember, plants such as honeysuckle...
- Slide 89 And sunflowers...
- Slide 90 ...And many of our native wildflowers as well as our other ornamentals provide nectar (food) for butterflies and for many of our beneficial insects in their adult stages. To provide a more ecologically sound landscape; food must be provided during the non-predatory stages of the beneficial organisms' life cycle.
- Slide 91 You also need to be able to tell the difference between mechanical or cultural damage and that caused by disease and insects. This picture shows what looks like some type of disease. Yet, if you check your calendar you know this problem was caused by freeze damage and is appearing weeks later.
- Slide 92 Weeds can harbor many types of insects and disease that harm ornamental plants. They also take nutrients and water from the soil. It is best to remove weeds early and mulch to suppress their growth.
- Slide 93 Proper planting is must in any IPM program. Always loosen the roots from the root ball, once the plant is in the hole. Be sure and plant with the crook of the graft union facing the north. When moving plants, replant the plants with the same orientation in which they grew, i.e., replant the north side of the plant to the north.
- Slide 94 Proper planting includes: placing the plant in the hole to the correct planting depth, using a wide planting hole for best success, and always removing the container, wire basket, box or burlap from the root ball.
- Slide 95 Keep good records when you are scouting, especially if you are monitoring a commercial landscape. A chart such as this is a good way to keep records.
- Slide 96 Or use a calendar that can be put away and then brought out when needed.
- Slide 97 Use the map of the landscape to indicate where potential problems may occur. For example, extra-wet or extra-dry areas can be noted.
- Slide 98 Even though it is a jungle out there, you know where to start. Scouting is not difficult. In fact, it helps you keep the yard or landscape in a beautiful healthy growing condition. By making appropriate integrated pest management decisions that reduce the use of toxic chemicals, you can protect yourself, your neighbors, and the environment.
- Slide 99 Always keep in mind: Scouting is key to good pest control. Good scouting adds consistency to pest control. Only properly trained scouts provide effective, useful information. You must regularly scout the landscape to be successful. The purpose of scouting is to provide information for timely pest control, for prompt decision making and appropriate treatments.
- Slide 100 Pest control decisions need not be made hurriedly. It is often best to do nothing and check back later. Always let natural predators provide control first. Evaluate the cost effectiveness of alternative treatments. Use bio-rational materials when possible and spot treat affected areas only. And always choose the next least toxic chemical when chemicals are used. Re-visit and re-evaluate a treated area before making the next decision.

- Slide 101 To be successful, make sure your scouts are consistent in their reports and reporting, that they are properly trained and that your scout know the common pests and beneficial insects in your area. Set reasonable thresholds for pest control. Always respond in a timely manner to the scouting reports, and be sure to evaluate every pest control treatment.
- Slide 102 This program is brought to you by the University of Nevada Cooperative Extension.
- Slide 103 Thank you. We appreciate your attention.

For more information about Integrated Pest Management and Landscape Horticulture contact your nearest University of Nevada Cooperative Extension office. If you have a computer, go to www.unce.unr.edu for additional help and information.

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