Managing Landscape Pests Through Better Plant Selection

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What you choose to plant has many impacts . . .

- Seasonal appearance and maintenance
- Irrigation requirements
- Potential pest problems
- Pruning frequency
- Long-term success
- Habitat value for wildlife
- Forage value to pollinators
Many factors affect plant selection . . .

- Availability of plant material
- Budget
- Purpose of planting
- Site conditions
- Personal preference of designer or client

Typically have many options
Thoughtful selection can reduce pest problems

- Many pests and diseases are host-specific
- Only infest/infect a narrow range of closely related plants
- Avoiding or replacing pest prone plants results in less pest and disease issues

Bagworms: Pests of conifers
Pest and disease problems can be:

- **Sporadic**
  - Do not occur every year/season
  - Usually only when environmental conditions perfect

- **Recurring**
  - Predictably return every year/season

Powdery mildew is a recurring problem for some plants.
Pest and disease problems can be:

- **Cosmetic**
  - Affect appearance only, generally short-term
  - Causing no serious impact to plant health

- **Serious but treatable**
  - Potentially damaging if not treated/managed in timely manner

- **Serious but untreatable**
  - Result in plant death

Most leaf spot diseases are cosmetic, especially when they occur late in the season.
Avoid planting or replace plants . . .

- Prone to serious, untreatable pests/diseases
- With frequently recurring problems
- Susceptible to cosmetic problems if planted in high visibility locations
Selecting Alternatives

No plant is perfect or 100% problem free

- Many problems are cultural
  - Wrong plant for site
  - Poor soil conditions - compaction
- Increase success – Improve soil:
  - Cultivate to alleviate compaction
  - Incorporate compost
- Adjust pH if needed
  - Typical Piedmont soil: pH 5.0
  - Most plants prefer: 6.0 – 6.5
  - Acid lovers prefer: 5.0 – 5.5

Most plants that fail within a year of planting die due to cultural problems
Selecting Alternatives

Stress increases problems – sources:

• Poorly adapted to climate (heat/cold)
  • Cold tolerance – low temps and fluctuations
  • Heat and humidity tolerance

• Water stress
  • Too little - drought
  • Too much – deluge or poor drainage
  • Incorporate compost – improves both!

• Poor nutrition
  • Soil test to determine pH
  • Adjust based on soil report recommendations
  • Incorporate lime and phosphorus

Ponderosa Pine – will not grow in NC, not adapted to climate
Selecting Alternatives

Select right plant for the site

• Local climate
• Sun/shade exposure
• Soil type and drainage

DIVERSITY!

• Not seeking a single replacement for each pest prone plant
• Use a variety of plant species and cultivars
Let’s look at some commonly planted repeat offenders:

• Leland Cypress
• Roses
• Boxwood and Japanese Holly
Leyland Cypress
× *Cuprocyparis leylandii*

- Upright evergreen conifer
- Fast growing
- Large: 50+ tall, 20+ wide
- Prefers sun, well drained soil
- Popular for screening and hedges

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Common Problems: Leyland Cypress

• Serious, treatable
  • Bagworms

• Serious, untreatable
  • Root rot
  • Seridium canker

Entire trees may rapidly die from root rot, especially during wet weather
Pest Problems - Bagworms

• Most conifers are susceptible
• Larval stage (caterpillar) of a native moth
• Weaves protective bag out of plant debris while feeding
• Can defoliate conifers in a matter of weeks if large populations – trees will not recover
Bagworms

• Hatch in May
• Treatable in early summer – many options including organics: neem oil, B.t., spinosad
• Pupate late summer (~August) – Pesticides are not effective after this happens!
• Bags are full of eggs all winter – waiting for spring to hatch
Seiridium Canker

- Fungal disease
- Branches die individually, cankers on stems
- No treatment
- Drought stressed trees more susceptible
Cankers ooze sap – this is diagnostic of Seridium canker
The next Leyland Cypress: Thuja ‘Green Giant’

• Fast growing evergreen for screening
• Grows 40’+ tall, 10’ wide
• Sun, moist but well drained soil
• Watch for bagworms
• Rapidly becoming overplanted – increases pest pressure
‘Spartan’ Juniper
*Juniperus chinensis*

- Grows 10’-15’ x 3’- 4’
- Very drought tolerant
- Full sun, well drained soil
- Watch for bagworms!!!!

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Better Options: Upright Hollies

- Not as fast growing but more successful in the long term
- Tolerate sun – part shade, moist or well drained soil
- Good drought tolerance
- Most are hybrids between native and Asian *Ilex* species

Many cultivars:

- **Needlepoint**, 15’ x 10’
- **Nellie Stevens**, 20’ x 15’
- **Red Hollies** – 15’-20’ x 10’
  - ‘Oakleaf’ - ‘Cardinal’
  - ‘Festive’ - ‘Robin’
Cleyera

- *Ternstroemia gymnanthera*
- Sun to full shade
- 8’+ tall x 6’+ wide
- Well drained soil
- Drought tolerant
- Tolerates heavy pruning but more attractive when grown natural
- Deer resistant

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Osmanthus

• Sun - part shade, well drained soil
• Fall flowers – extremely fragrant
• Deer resistant
• Tea Olive, *O. fragrans*
  • 10’-15’, less hardy
• Holly Osmanthus, *O. heterophyllus*
  • 8’-10’ depending on cultivar
  • Very prickly leaves!
• Fortune’s Osmanthus, *O. x fortunei*
  • Hybrid between above 2
For part shade, moist acidic soil

Florida Anise

*Illicium floridanum*

- 6’ x 4’
- Red spring flowers
- Anise Shrub – *Illicium parviflorum* is larger

Florida Leucothoe

*Agarista populifolia*

- 10’-12’
- Deer resistant
Roses

- Deciduous shrub for seasonal color
- Newer varieties long blooming, spring – fall
- Some varieties fragrant
- Best in sun, well-drained soil
- Prune hard each winter
Common Rose Problems

• Cosmetic, frequently recurring
  • Powdery mildew
  • Black spot
  • Japanese beetles
  • Rose slugs

• Serious, treatable
  • Canker – manage w/ pruning

• Serious, untreatable
  • Rose Rosette
Black Spot – recurring fungal disease
Cosmetic or serious depending on cultivar. Some rose varieties more susceptible than others
Rose Slug – Sawfly Larvae

- Active early summer
- Cosmetic damage to foliage
- Many options to treat, including organic, but B.t. not effective
Rose Rosette

• Virus, systemic
• Fatal, no control
• All rose varieties susceptible
• Only roses are susceptible
• Spread by eriophyid mites
• Symptoms vary
Symptom:

- Discoloration of new growth
- Usually dark red
- Persists through the season
Symptom: Excessive thorniness
Symptom: Witches broom

- Flowers and leaves small, distorted, discolored
- Leaves more susceptible to powdery mildew
- More sensitive to cold
Rose Rosette

• Disease is systemic – whole plant infected
• Die within 1-2 years of first symptoms
• **Completely remove** infected plants ASAP – monitor for root sprouts
• Bag or burn plants
• Does not persist in soil or dead plant tissue
Roses
Alternatives

Japanese Spirea
*Spiraea japonica*

- Sun, well drained soil
- Pink flowers, summer
- 4’-5’ x 3’-4’
- Many varieties have yellow/lime foliage
- Bloom on new growth – prune hard in winter

Goldflame
Hardy Hydrangea
*Hydrangea paniculata*

- Sun – part shade
- Well drained soil
- Many cultivars, range from 3’- 4’ to 6’- 8’
- Blooms on new growth – prune hard in winter
Mt. Airy Fothergilla

- *Fothergilla major* ‘Mount Airy’
- Native
- 4’-5’x 4’-5’
- Sun to part shade
- Moist or well drained soil, acidic
- Honey scented spring blooms, beautiful fall color
- Deer Resistant
Mt. Airy Fothergilla

Reliable, long-lasting fall color
Sweet Pepperbush
*Clethra alnifolia*

- Native
- Sun – part shade, well drained or moist soil
- Dwarf cultivars grow 3’-4’
  - Hummingbird
  - Sixteen Candles
- Blooms in June-July, attracts butterflies and pollinators
- Very fragrant
- Deer resistant
Sweet Pepperbush
*Clethra alnifolia*

Reliable fall color even in shade. Gold to clear yellow
Japanese Hollies and Littleleaf Boxwoods

Japanese Holly, *Ilex crenata*

Littleleaf Boxwood, *Buxus microphylla*

Alternate Leaves

Opposite Leaves
Japanese Holly

- *Ilex crenata*, many cultivars
  - ‘Helleri’, ‘Soft Touch’, ‘Steeds’

- Fine textured, small evergreen shrubs
  - 3’–5’ x 3’–5’ depending on variety

- Often used for foundation plantings

- Sun or shade, moist, well drained soil

- Live 15 – 20 years in South

- NOT drought tolerant!
Littleleaf Boxwood

• Fine textured, evergreen – small, dark green leaves, often used for foundations or low, formal hedge


• More adaptable than *Buxus sempervirens* (American/English Boxwood)

• Sun to part shade, moist well drained soil

• Shallow roots – Not drought tolerant
Recurring Problems

• Cosmetic
  • Spider mites - both
  • Boxwood leafminer

• Serious, untreatable
  • Root Rot – both
  • Boxwood blight
Black Root Rot - Japanese Holly

- *Thielaviopsis basicola*
- Soil borne, fungal root rot
- Serious, not treatable
- Long lived in soil
  Most active in cool weather, wet soil
- Effected plants are stunted, dieback, decline over long period – often die in drought
Phytophthora Root Rot

- Soil borne fungal disease
- Plants appear stunted, off color, sections may die
- Roots are dark, outer covering slips off easily
- Active in wet soils in warm weather
Boxwood Blight

• First found in US in 2011
• Fungal disease
• Plants defoliate, dark streaks on stems
• Most severe under warm, humid conditions, in shade
• Infected plants should be destroyed
Boxwood Blight

Dark streaks on twigs and stems are a diagnostic symptom of this disease.
Japanese Holly and Boxwood Alternatives

**Dwarf Yaupon**

*Ilex vomitoria*

- 3’-4’ tall and wide
- Sun – part shade
- Drought tolerant
- Tolerates extreme pruning
- Cultivars: ‘Shillings’, ‘Bordeaux’, ‘Nana’
- Most cvs. are male
Carissa Holly

- *Ilex cornuta* ‘Carissa’
- Sun – shade
- Very drought tolerant
- 3’-4’ x 4’-6’
- Male - no berries
- Requires little pruning
‘Duke Gardens’
Japanese Plum Yew

- *Cephalotaxus harringtonia*
- Shade or sun
- Well drained soil
- 3’-4’ x 4’-5’
- Deer resistant
- Slow to moderate growth rate
‘Firepower’ Nandina

- Sun to part shade
- Well drained soil
- One of the smallest shrubs
  - 2’ x 2’
- Never blooms or produces berries – not invasive
- DEER may be a problem

NC State Extension
“Plan and plant for a better world”

J.C. Raulston

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