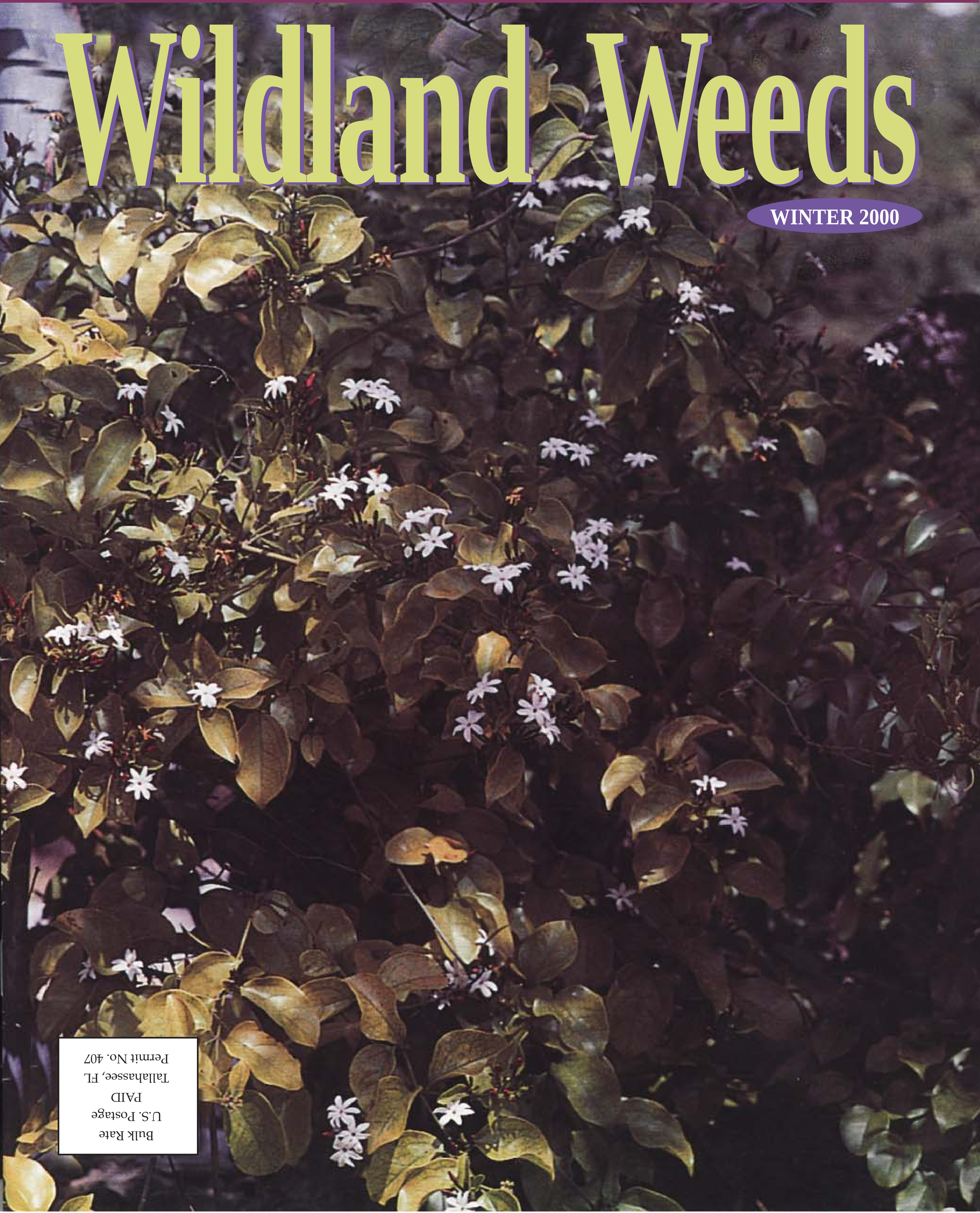
Weed Research Around the World

Wildland Weeds

WINTER 2000



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Wildland Weeds

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Cover:
Brazilian jasmine (*Jasminum fluminensis, J. azoricum* misapplied), is the most frequently encountered and most troublesome jasmine in Florida

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Letter to the Editor:

FLEPPC was recently contacted by the Central Florida Palm & Cycad Society (CFPACS) concerning our listing of three palm species, *Livistonia chinensis*, Chinese fan palm, *Phoenix reclinata*, Senegal date palm, and *Ptychosperma elegans*, solitary palm as Category II on the FLEPPC 1999 List of Invasive Species. CFPACS was "surprised, amazed is more like it," that these species, (especially *Livistona chinensis*, which are "SO slow-growing ——-" and in the case of Phoenix reclinata, dioecious) are listed along with invasive species such as *Wedelia trilobata*. Part of the concerns of CFPACS, as has been the concern of others, is the implication that plants listed on the FLEPPC List of Invasive Species will be prohibited or regulated in some way.

The purpose of the FLEPPC List of Invasive Species is to inform others of those species that we consider to be invasive. Our definition of Category II is clear, "Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species." Just as species in Category I are not equally invasive, so it is with those listed as Category II. While the palms and cycads as a group are slow growing and slow to reach sexual maturity and therefore not as invasive as some other species, all three palm species listed as Category II meet the criteria: *Phoenix reclinata* (plants are not always fertile when observed so at least *Phoenix*-type plants) has been observed in natural areas since the 70's from at least Palm Beach County south and recently in Hernando County. *Ptychosperma elegans* naturalizes regularly and has been observed for over a decade in Gumbo Limbo Nature Center (Palm Beach County) and in natural areas of Dade and Monroe Counties. *Livistona chinensis* is naturalized and found frequently in hammocks of south Florida and has escaped in Manatee and Putnam Counties. While certain species listed as Category I or II are regulated at federal, state, county, or city levels, and perhaps others should be, listing does not itself imply that a species should or will be regulated.

CFPACS asks that we consult with "academic botanists specializing in these plants" before listing palms and cycads as invasive. We appreciate the interest of CFPACS in our efforts to identify invasive plant species and will, as in the past, seek the consensus of experts within FLEPPC and outside our own organization on the listing of species as invasive. We as members of FLEPPC must continue dialogue with horticultural interests concerning the intent of our List of Invasive Species and the reasons for listing species. *–Ken Langland*

Non-native Species at Medieval Castles as Cultural Heritage

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Introduction

The present study focused on non-native plant species occurring at medieval castles. In Central Europe castles are among the oldest buildings. On top of hills and rocks they were built during the 11th - 13th century in the Middle Ages. Since that time they are centers of spread of non-native plants. Waste, transportation of goods, visitors and castle gardens were the first sources of diaspores of non-native plants which colonized the surroundings of the castles assisted by the accumulation of nutrients from mortar, waste and livestock. With the end of the Middle Ages, the castles lost their function, most of them were destroyed or became dilapidated, only some were used as residential buildings. In the 19th century a new interest in the castles began and some of them were reconstructed. Today they are ruins or used as museum, restaurant, hotel or residential building. But in general castles were much less changed during the centuries than towns or settlements. Castles were intensively used over a period of up to 400 years and than often unused over a period of the same extension. Therefore they

Fig. 1: The five investigation areas in Germany and the number of investigated castles.

are suitable objects to study the question, if it is possible to explain the occurrence of non-native species at castles today with their use in the Middle Ages or later historic periods.

Study areas and methods

Five areas in Southern and southeastern Germany were investigated: parts of the river valleys of the Saale, Altmühl and Neckar, and parts of the regions Fränkische Schweiz and Schwäbische Alb (Figure 1). These landscapes have a high density of medieval castles all built on limestone rocks.

Plant species of walls and rocks of 56 castles were recorded from 1994 - 1997. The investigation was limited to the plants of rocks and walls because especially non-native species occurring in natural or semi-natural vegetation should be recorded. Cultivated plants were consequently excluded.

Non-native species are defined as species that have not evolved in the investigation area since the last Ice Age and whose introduction or immigration was supported deliberately or involuntarily by human activities (Kowarik 1995). They are divided by time of introduction in archaeophytes (invading before 1500 AD) and neophytes (invading after 1500 AD).

Information about time of introduction, area of origin and use of the plants were taken from literature (Düll & Kutzelnigg (1992), Fischer-Benzon (1894), Fischer (1929), Hegi (1906-1998), Schlosser et al. (1991), Willerding (1992)).

Results

A total of 371 plant species occurred on the rocks and the walls of the castles, 97 of them non-native. According to their time of introduction they could be seperated into 66 archaeophytes and 31 neophytes. Neophytes occurred with a higher frequency (4.2 localities per species) than archaeophytes (3.1) The origin of 75 non-native species is Europe or Europe and Asia and most species in these two groups are of Mediterranean origin. These species occurred with the highest frequency (3.6 / 3.5 localities per species), whereas species of Asian or American origin had lower numbers of localities per species (3.3 and 2.8 respectively).

The most frequent non-native spe-

Fig. 2.: Neophytic shrub association with Lilac (*Syringa vulgaris*) and Duke of Argyll´s Teaplant (*Lycium barbarum*) at the castle Neuenburg in the Saale/Unstrut region.

cies were Viper's bugloss (*Echium vulgare*) and Lilac (*Syringa vulgaris*) occurring at 40 -60% of the castles. At several castles the Lilac is the dominating plant in neophytic shrub associations (Figure 2) accompanied by Duke of Argyll's Teaplant (*Lycium barbarum*), Robinia (*Robinia pseudoacacia*), Snowberry (*Symphoricarpos albus*), Laburnum (*Laburnum anagyroides*) and several native shrubs. Also, in the herbaceaus layer under the shrubs non-native plants occur (e.g.: Barren Brome (*Bromus sterilis*), Pellitory-of-the-wall (*Parietaria officinalis*), Bur Chervil (*Anthriscus caucalis*)). More conspicuous are the populations of Iris, mostly *Iris germanica (Figure 3)*, covering areas of up to 20 m_ on the rocks of some castles. On the walls, Wallflower (*Erysimum cheiri*, Figure 4), Snapdragon (*Antirhinum majus*), Yellow Corydalis (*Corydalis lutea*) or Ivy-leaved Toadflax (*Cymbalaria muralis*) are colourful examples of non-native plants established in the seminatural wall-vegetation.

Utilisation of the plants during the Middle Ages was analysed for non-native (archaeophytes) and native species. In the evaluation, uses were taken into consideration which are verified by historical documents from the Middle Ages (Fischer-Benzon 1894, Fischer 1929) or archaeobotanical results from excavations (Willerding 1992). Altogether 91 species were usable plants during the Middle Ages, 33 species of them are archaeophytes. This means that of 66 archaeophytes occurring at the castles 50% have a possible use in that time. Table 1 shows most plants served as medicinal plants often with a widespread area of applications:

- Henbane (*Hyoscyamus niger)* was used during the Middle Ages as a drug in magic potions, as anaesthetic for dental treatment or as intoxicating herb for beer-brewing
- Rue *(Ruta graveolens*) for gynecological disorders, eye complaints, abortions, and as magical plant against enemies and devils.

Table 1: Native and non-native (only archaeophytes) species at the castles, which were used during the Middle Ages and their possible use as medicinal -, food -, technical – or ornamental plant.

Use	total	native	non-native (archaeophytes)
medicinal	**66**	**49**	**17**
also used:			
magical	3	1	2
food	9	5	4
spice	5	3	2
ornamental	1	-	1
food	**11**	**6**	**5**
also used:			
medicinal	4	1	3
technical	**5**	**1**	**4**
also used:			
medicinal	2	1	1
ornamental	**10**	**3**	**7**
also used:			
medicinal	2	1	1

Others were spices or food plants and others had a technical use – e.g. the Yellow Chamomilla (*Anthemis tinctoria*) for dyeing or the Pellitory-of-the-wall (*Parietaria officinalis* and *P. judaica*) for cleaning. An important tree for the inhabitants of the castles in these times might be the Yew (*Taxus baccata*) from whose wood bows were built. Some of the old food plants are still used today like the Walnut (*Juglans regia*) or the Chives (*Allium schoenoprasum*), others are unknown today like the use of the hot leaves of the Pepperweed (*Lepidium latifolium*) or eating leaves of Mallows (*Malva neglecta* and *M. sylvestris)* like spinach.

In contrast, most of the neophytes introduced later (after the end of the Middle Ages in 1500 AD) were used as ornamentals (24 of 31 species). Table 2 shows the comparison between the potential uses of archaeophytes and neophytes.

Discussion

Rocks around medieval castles and castle walls are places with a high portion of non-native plant species. 26% non-native species were found at these sites, while in the total flora of Germany there are only 16% (Jäger 1991). The portions of archaeophytes and neophytes were also different: 68% of the non-native species at the castles were archaeophytes, while in the total non-native flora they contribute only 40%.

With the methods of this investigation it is not possible to explain localities of non-native species at the castles with their use at the same castles in the Middle Ages or later times but there

Table 2: Comparison of potential uses of archaeophytes and neophytes at the castles. (absolute number and percentage). Multiple uses of some species are not regarded. Information about uses is taken from literature (Düll & Kutzelnigg (1992), Fischer-Benzon (1894), Fischer (1929), Hegi (1906-1998), Schlosser et al. (1991), Willerding (1992)).

Use	Archaeophytes		Neophytes	
medicinal	24	36%	1	3%
food	7	11%	0	-
forage	1	2%	0	-
technical	4	6%	0	-
ornamental	8	12%	24	78%
without use	22	33%	6	19%

are some reasons which underline this hypothesis. At first this is the occurrence of vegetatively propagated plants like the iris-species. Their localities are often limited to rocks near the castles and no way of long distance dispersal is known. Second, it is the limitation to castles of species used especially in the Middle Ages e.g. Rue or Iris (*Iris* sp.). Medieval documents verifying concrete localities of non-native species at castles are not known but for some species and localities it is possible to find references in literature more than 100 years old.

Species of different times of introduction represent different uses of the castles during the centuries. In the Middle Ages the castles were built and used for protection and demonstration of power. In the castle area there were stables, working areas and gardens. People living in the castles had to work in the fields too. Plants which were used in these times were mostly plants useful for daily life at the castles. Consequently the non-native species introduced in or before the Middle Ages could be used for these purposes. With the end of the Middle Ages the function of castles changed. Some were used as prestigious residential buildings. Now ornamental plants became more important for the inhabitants of the castles. This could explain why the portion of neophytes (introduced after the Middle Ages) occurring at the castles are used mostly as ornamental plants (24 of 31 species). Also, this might be one reason for the higher number of neophytes at castles used until today than at castles which are ruins (Dehnen-Schmutz 1998).

Non-native species have changed the vegetation of rocks around castles. There might be cases of local displacing of native species but in general non-native species do not belong to the reasons endangering rock-vegetation in Germany (Witschel 1998). The results of this study show that these non-native species are a cultural heritage documenting medieval culture and the history of use of the castles like the walls and towers of the castles themselves.

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Fig. 4 & 4b: Wallflower (*Erysimum cheiri*) on the wall of the castle Horneck (Neckar).

New Zealand—a Weedy Paradise

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New Zealand the paradise?

Tourist brochures talk of New Zealand as a land of captivating scenery, snow-capped mountains, beautiful lakes and dinosaur rainforests: a mecca for nature-lovers. New Zealand has high endemism, for example 80% of the 2,057 native vascular plants are found nowhere else. Unfortunately, New Zealand is also a country teeming with weeds. Over 25,000 plant species have been introduced in the last 200 years. Of these, 2,100 species have already naturalised and many of the remaining massive pool of cultivated species will naturalise in the future.

But oh so weedy

About 10%of naturalised plant species subsequently become invasive weeds of conservation concern. The number of invasive weeds in New Zealand has been steadily growing since the 1860s and this trend shows no sign of slowing down. The New Zealand Department of Conservation (DOC) manages 30% of New Zealand's land area for conservation and lists about 250 invasive weeds on this and other land (Owen 1997). Based on past trends, we expect two new species to be added to this list each year (Buddenhagen et al. 1998). Most of these weeds were deliberately introduced to New Zealand – 75% as garden plants and 14% for agriculture, horticulture or forestry. This trend also seems set to continue. Similarly, about half of the aquatic species listed by DOC as invasive weeds were introduced as ornamental plants (Buddenhagen et al. 1998).

These 250 weed species have invaded nearly all types of indigenous plant communities in New Zealand and almost the full range of altitude, soil type, rainfall and temperature. An inventory of conservation sites throughout New Zealand showed that weeds would degrade at least 575,000 hectares within 10–15 years and cause the extinction of native communities or species at over 150 sites if no control was done (Buddenhagen et al. 1998). Weeds threaten more than 111 high-priority native forest or shrubland reserves, large tracts of native tussock grassland and more than 30 remnant coastal vegetation communities. Invasive weeds have modified all remaining freshwater wetlands and spread thoughout most of New Zealand's rivers and lakes (Howard-Williams et al. 1987). Another study showed that weeds are the main risk to survival of a third of New Zealand's threatened plant species (Reid 1998). Many of these threatened native plants are small, less than 10 cm tall, and are thus easily smothered or shaded out by competing weeds. They often occur in alpine seepages, wetlands, rivers and lakes, foreshore habitats, dune lakes and sand-dune communities. These same community types are among those most vulnerable to weed invasions – low-stature communities and small, narrow, disturbed remnants with fertile soils that are close to towns (Timmins & Williams 1991).

- 25,000 introduced species
- 2,100 naturalised species, 2,057 native plant species
- 250 invasive weed species of conservation concern
- 75% of the invasive species are garden escapes
- At 150 sites weeds threaten native communities or species with extinction
- Weeds are the main risk to survival of a third of the threatened plant species

The New Zealand Department of Conservation's Weed Strategy

Having painted you a picture of a triffid-like land, it will come as no surprise that we have neither the money nor the people-power to do all the weed control that we might want to – so we must prioritise. The Department of Conservation distinguishes between weed control to protect high-value places (site-led control) and weed control to minimise future threats (weed-led control). The two approaches have distinct characteristics (Table 1); full details can be found in Owen (1998) and a summary of the associated prioritising systems in Timmins & Owen (1999). DOC is organised into 13 administrative units called conservancies. Weed-led control is a conservancy-wide programme on land of any tenure, whereas site-led control focuses on a protected natural area or part thereof (Table 1).

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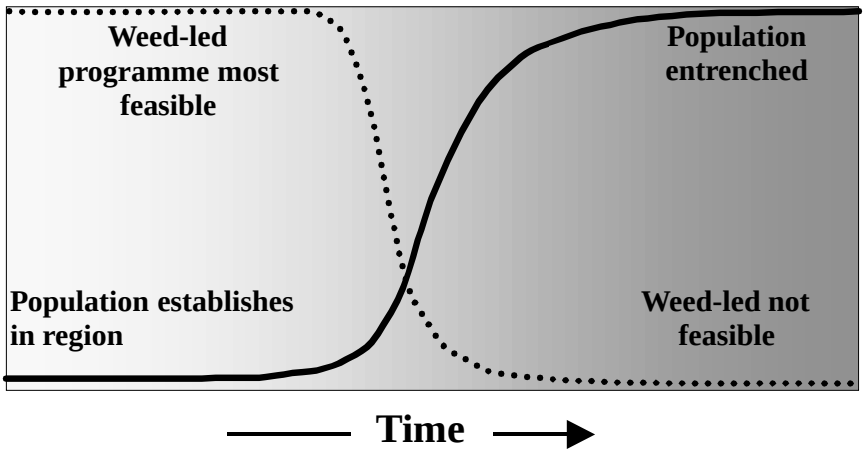
Weed-led Control: Nipping it in the Bud

Early during an invasion there is a brief window of opportunity to eradicate or contain the species; this is the only time for weed-led control (Figure 1). Our aim is to get rid of a nasty weed *before* it gets away on us. Weed-led programmes are *only* pursued if we think it is feasible to permanently remove the target weed species with little likelihood of re-invasion or at the least, contain the spread of the weed within the conservancy. We evaluate the current distribution of the weed and the availability of a suitable control method. In practice, this limits weed-led programmes to species just beginning to invade, or with a very confined distribution, within a conservancy. Only for these species is the infestation likely to be controllable and re-invasion manageable. We also assess the likelihood of gaining co-operation from relevant landowners; to be successful, the weed species must be controlled wherever it occurs in a conservancy, irrespective of the quality of the sites or who owns them. The feasibility of a weed-led programme mirrors the weed population growth (Figure 1). Very few species infestations are feasible for weed-led control. Those that pass the test are prioritised, taking into consideration the potential invasiveness of the species as well as the likely cost, difficulty and speed with which eradication can be achieved.

Figure 1: Relationship between population growth and the feasibility of a weed-led programme (Adapted from Williams 1997).



Site-led control: it's the putting right that counts

The impetus for site-led control comes from the otherwise high conservation values of a site invaded by weeds. The aim is to protect the site values. Site-led programmes are prioritised on the basis of several factors. The higher the site's biodiversity value the higher its priority for weed control. Preventing weeds invading an otherwise pristine place is given a higher priority than controlling well-established infestations. Urgency for control is another factor. Programmes that integrate weed control with other threat management activity, such as species recovery and animal pest control, are also given preference. DOC's site-led programmes vary from places of less than 5 acres to programmes covering 10,000 acres and occur in all community types.

Table 1: The characteristics which distinguish the weed-led and site-led management approaches.

	Weed-led	Site-led
Purpose	Prevent new weed species becoming entrenched in the wild in the conservancy.	Protect valuable places and threatened species.
Scale	A whole conservancy.	The invaded site.
Species focus	Newly invading and/or with a very confined distribution in a conservancy.	Those necessary to protect the place. Often widespread weeds.
Sites	All infestations within the conservancy, on sites of any quality and any tenure.	Infestations within the place; plus buffers and seed sources outside it.
Success when…	The species is eradicated or contained within the conservancy.	The condition of the native communities and species improves.

Note: a conservancy is a Department of Conservation administrative unit; there are 13 in New Zealand.

Shifting paradigms

The weed-led / site-led approach to weed management is a relatively new initiative for DOC. It has meant completely letting go of the paradigm: "It's a noxious weed – kill it" or "It's not on the list – ignore it". Because a new weed must pass the low-incidence test to qualify as a weed-led programme, it is axiomatic that sometimes we don't know much about the invasiveness of a species that is new to a conservancy. Some people don't see the point in controlling a weed species that has no demonstrable ecological impact (yet!). Therefore they are reluctant to conform when, for example, a weed-led programme calls for a ban on growing

a species in gardens.

Under the site-led approach, weed control cannot be justified at low-value sites, including those where weeds have been traditionally controlled. Many staff have found it hard to give up on widespread weed species which they had previously attempted, in vain, to eradicate. In addition, each site-led programme control focuses on the species threatening the values of that particular site, whether or not they are commonly thought of as weeds. The weed-led / site-led approach leads us to focus conservancy-wide eradication attempts on weeds of very limited distribution and to confine control of ubiquitous weeds to important sites.

Monitoring the outcome, not just the weed

The weed-led / site-led approach to weed management, in concert with robust monitoring, should give us better conservation return for our weed control dollar. By monitoring we regularly evaluate the feasibility of weed-led programmes, e.g., control techniques may not be as successful as anticipated, or new infestations may be discovered that make eradication or containment unlikely. Continuing with such programmes could then waste both resources and community support.

Site-led programmes have demanded more than just a shift in our thinking. We have also changed the way we monitor the effectiveness of weed control. It is not enough to just check whether the infestation has been removed or reduced. Even more important is whether control has achieved the desired conservation outcome. Have the threats posed by the weed to native communities been alleviated and have native plants colonised the space previously occupied by the weed? We have developed monitoring guidelines that outline how the monitoring should be done to produce statistically robust results (Geritzlehner 2000).

Our new approach to weed management demands quality information. To partially address the information problem, DOC has developed the National Weeds Database. It stores ecological, distribution and control information on weed species of concern to DOC.

Finding new weeds early enough

Too often in the past, by the time a weed was widely recognised as a threat, it was too widespread for eradication to be feasible. Finding new weeds early enough, while they are still in the lag phase, is the aim of DOC's weed surveillance plan (Braithwaite in press). The surveillance plan brings a system to what was a haphazard process and provides for planned, regular and systematic checks for new weeds. Conservancies survey high-value places for weeds new to that place to provide early information for preventative site-led control. They also do species-specific searches, and surveys of vulnerable places looking for any new weed species. Finds become potential weed-led control programmes. Vulnerable sites may have little or no conservation value but they are where new weed species are likely to first naturalise, for

example, wastelands and natural areas close to towns.

Each conservancy prepares a list of likely species before surveys are conducted. The list may include species that are cultivated but not yet naturalised, or those invasive in a nearby conservancy, or those new to New Zealand and causing concern in areas with similar conditions. The list gives the searcher an idea of some of the species to look out for while still being alert for novel species.

The Plan also ensures that action is taken on the often-casual sightings made by DOC staff, as well as by weed folk in other land management agencies and members of the general public – such sightings are only valuable if they are heeded (Braithwaite & Timmins 1999). With more systematic searching, and follow-up of new sightings, we expect to be able to find more newly naturalised species, while they can still be eradicated.

Conclusion

Science provides us with information essential for managing weeds: their autecology, their impacts, and techniques for controlling them. Translating the science into practical and effective management systems requires us to be very clear about what we are trying to achieve. The Department of Conservation distinguishes between weed control to eradicate a weed species and minimise future problems (weed-led) and weed control to protect important places (site-led). This approach, in concert with the other weed initiatives – surveillance system, robust monitoring and a national database – allow us to prioritise our weed work to deliver more conservation return per weed dollar spent.

Acknowledgements

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The Genus *Jasminum* In Florida

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Miami, FL 33170


Jasminum Fluminense

"Jasmine" (or "jessamine") is a popular name for a number of unrelated plants. Confederate jasmine (*Trachylospermum jasminoides)* and pinwheel jasmine (*Tabernaemontana divaricata)* both belong to the Oleander Family (Apocynaceae). Day jasmine (*Cestrum diurnum*) and night jasmine (*C. nocturnum*) are members of the Nightshade Family (Solanaceae). Orange jasmine (*Murraya paniculata*) is in the Citrus Family (Rutaceae). And Madagascar jasmine (*Stephanotis floribunda*) is in the Milkweed Family (Asclepiadaceae). True jasmines belong to the genus *Jasminum*, a tropical and subtropical genus comprised of about 300 species of vines and shrubs from Eurasia, Africa, Australia, Oceania, and tropical America. They are members of an economically important group of plants, the Olive Family (Oleaceae) and are related to the olive (*Olea* sp.), ash (*Fraxinus* sp.), and lilac (*Syringa* sp.). Many jasmines are of horticultural interest, mainly for their fragrant flowers, and some species are cultivated commercially for the production of perfume and as a flavoring for tea. In many countries the flowers are also used in garlands and worn in the hair.

Currently there are at least ten species of *Jasminum* cultivated in Florida. Of these, seven species have escaped cultivation, which include Gold Coast jasmine (*Jasminum dichotomum*) Brazilian jasmine (*J. fluminense)*, Japanese jasmine (*J. mesnyi*) star jasmine (*J. multiflorum*) angelwing jasmine (*J. nitidum*) poet's jasmine (*J. officinale)*, and Arabian jasmine (*J. sambac)*.

Following Hurricane Andrew in 1992, Gold Coast jasmine and Brazilian jasmine became exceptionally aggressive in the storm-damaged forests of Miami-Dade County. Both had been established long before the storm but soil disturbance and abundant light levels created by fallen trees allowed localized populations to explode. Both species were introduced by Dr. David Fairchild, the founder of Fairchild Tropical Garden in Miami. Fairchild even apologized for introducing the Gold Coast jasmine after observing the abundant fruits produced in Florida, fearing that he may have introduced a plant that would become a serious environmental pest.

In 1962, Robert Read, a botanist associated with Fairchild Tropical Garden authored a paper in the proceedings of the Florida State Horticultural Society entitled "Jasmine species in cultivation in Florida and their correct names." In this paper, Read mentions Fairchild's early concerns regarding the weedy potential of Gold Coast jasmine but concluded that "although the species does produce an abundance of fruit it is not a serious weed. Only a few wild plants may be found in vacant lots and along the roadside in south Florida."

That Was Then, This Is Now

As Dr. Fairchild predicted, Gold Coast jasmine has become a troublesome weed in Florida and can now be found in virtually every hardwood forest in urbanized Miami-Dade County. Wunderlin (1998) lists it for Highlands County and the southern peninsula, and the Florida Exotic Pest Plant Council (EPPC) includes it in Category I of Florida's most invasive species. Cat-

egory I is reserved for those plant species that are disrupting Florida native habitats and includes such notorious pests as Brazilian pepper (*Schinus terebinthifolius*), cajeput (*Melaleuca quinquenervia*), and Australian pine (*Casuarina equisetifolia)*. Aside from native habitats, Gold Coast jasmine is also exceptionally weedy in disturbed sites, such as along fencerows as well as in cultivated landscapes.

Gold Coast jasmine is a woody climber, which can reach 25 feet or more into the tree canopy. Its simple, ovate, glossy leaves are opposite and the petioles are noticeably angled in a somewhat elbow shape. This is a useful characteristic that resource managers can use to identify sterile plants because a native shrub of hardwood forests in southern Florida, snowberry (*Chioccoca alba*) somewhat resembles Gold Coast jasmine but lacks the angled petiole. Gold Coast jasmine produces intensely fragrant white flowers that are pink when in bud. The flowers are followed by a great abundance of pea-sized black or dark purple fruits that are eaten by birds and mammals.

Fairchild's Folly

Another species that Dr. Fairchild introduced into Florida, and again one that he later apologized for, is Brazilian jasmine. This plant has an interesting history of introductions. In 1916, cuttings labeled *Jasminum azoricum* were shipped from La Mortola Gardens in Italy to the USDA Plant Introduction Station in Miami. None of these cuttings survived so it is unknown whether or not they were actually *J. azoricum*, a native of the Canary Islands. Seeds that Dr. Fairchild introduced in 1931 came from Oranjestad, St. Eustatius in the Leeward Islands, and these too were labeled *J. azoricum* by USDA, probably because of its similarity to the earlier introduction. The following year, USDA received more seeds of "*J. azoricum"* from Nassau, Bahamas (Read, 1962).

Jasminum azoricum is a misapplied name for the species introduced into Florida. The correct name is *Jasminum fluminense*. Another confusing aspect of this plant is its common name and its reported native range. It is usually referred to as Brazilian jasmine because the type locality (where it was first collected and described) is near Rio de Janeiro in Brazil. It is believed to have been introduced into Brazil by the Portuguese. A frequently used common name for this species is Azores jasmine due to its introduction under the erroneous name *J. azoricum.*

The native range of Brazilian jasmine is listed as "Brazil" by Read (1962), as "tropical America" by Wunderlin (1998) and as "Africa" by Menninger (1970). In checking various floras in the research library at Fairchild Tropical Garden, it seems that it is clearly an African native. In the *Flora of Tropical East Africa* (Bruce and Lewis 1960), its range is given as "Mauritius, Seychelles, Arabia, Eritrea, Somaliland [Somalia and the Ogaden region of Ethiopia], Abyssinia [Ethiopia], Rhodesia [Zimbabwe], Nyassaland [Malawi], Portuguese East Africa [Mozambique], Angola, Nigeria, and South Africa (West Indies and South America, introduced)." Other African floras gave similar ranges, none of which mention it being native anywhere in the western hemisphere.

Brazilian jasmine has the honor of

being the most frequently encountered and most troublesome jasmine in Florida although, curiously, Wunderlin (1998) includes it as "rare" for Highlands, St. Lucie, Miami-Dade, and Monroe counties. It is widespread in a variety of habitats, most particularly hardwood forests, and is a pest in cultivated grounds as well. It is an everblooming vine with very fragrant white flowers produced in open clusters. The leaves are compound, bearing three leaflets that are slightly pubescent. Black or dark purple fruits are borne in profusion. Read (1962) pointed out its aggressive tendencies when he wrote, "when left alone it will grow over the top of any tree or shrub as rapidly as any vine." It is listed in Category I of Florida EPPC's list of most invasive species. Seeds are bird-dispersed but dense clusters of seedlings can be found sprouting from raccoon droppings as well.

Arabian jasmine, from tropical Asia, also deserves watching because it is already listed in Category II by Florida EPPC. Control of jasmines in natural areas has been successful using 10% Garlon 4 as a basal stem treatment on young plants and as a cut stump treatment on mature, old growth, woody stems. Seedlings can be hand-pulled but resource managers should make regular site visits to control re-infestations.

Literature cited

Bruce, E. A. and J. Lewis. 1960. Flora of Tropical East Africa: Loganiaceae. Hubbard, C. E. And E. Milne-Redhead, Editors. Crown Agents for Oversea Governments and Administrations, London, England, pp. 19-23.

Menninger, E. A. 1970. *Flowering Vines of the World.* Heathside Press, Inc., New York, pp. 246-253.

Read, R. W. 1962. *Jasminum species in cultivation in Florida and their correct names*; Florida State Horticultural Society Proceedings, Vol. 76, pp. 430-437.

Wunderlin, R. P. 1998. *Guide to the Vascular Plants of Florida.* University Press of Florida, Gainesville, FL, p. 488.

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Call for Papers and Participation

Southeast Exotic Pest Plant (SE-EPPC) Council 2001 National Conference

2001: A Weed Odyssey

Wednesday, March 21st through Friday, March 23rd, 2001

Georgia Center for Continuing Education

The University of Georgia • Athens, Georgia

Conference Objectives

The objectives of this interdisciplinary conference include: 1) exchange information and technology leading to cost-effective management of invasive exotic species in natural and developed areas; 2) provide a forum for participants to develop networks of mutual assistance, and; 3) facilitate interdisciplinary dialog between policy makers, land managers, and researchers.

Call for Papers

Participants are invited to submit proposals for oral presentations at the Conference. Accepted abstracted will be published in conference proceedings. Specific topics to be covered will include, but are not limited to, the following areas:

- Applied and Basic Ecological Research
- Control and Management – Herbicide Technology and Integrated Pest Management (IPM)
- Executive Order – Overview and Consequences
- Outreach and Education
- Public Policy
- Regional and Municipal Action Plans
- Screening and Assessment Techniques

Keynote Speaker Lori Williams, Director, Federal Invasive Species Council

Instruction for Authors
The abstract should be a maximum of 400 words and provide sufficient information for readers to fully analyze the objectives, methodology, results, and implications of the work in question. Each submission must be original work that has not been previously published. Each abstract will be reviewed by the conference committee and recommended for either acceptance or rejection.

Submissions should be sent in the following formats:

- E-mail (preferred) to cheryl@uga.edu or
  Plain Text
  PostScript (.ps)
  Portable Document File (.pdf)
- Hard Copy
  Mail to: Cheryl McCormick
  Institute of Ecology
  The University of Georgia
  Athens, Georgia 30602-2022

Deadline for Paper Submission: November 30, 2000

General Instructions:
Headings: The title, name(s) of the author(s), their affiliation(s), city and country should be included. Please do not include university degrees, titles, street address, and zip code. References: Please try to minimize the number of references.

Conference Committee: Joyce Bender (KY), Brian Bowen (TN), Ray Dorsey (GA), Amy Ferriter (FL), Stratford Kay (NC), Cheryl McCormick (GA), Tony Pernas (FL), Johnny Randall (NC), Dan Thayer (FL), Alfred Vick (GA).

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—Mike Bodle

MARK YOU CALENDAR

54th Annual Southern Weed Science Society Conference, Beau Rivage, Biloxi, MS. **January 22-24, 2001**. Contact: www.weedscience.msstate.edu/swss/.

Weed Science Society of America. **February 11-15, 2001.** Greensboro, NC. Contact: Charlotte Eberlein, 208/763-3600, ceberl@uidaho.edu.

Southeast Exotic Pest Plant Council "2001 Conference: A Weed Odyssey". Georgia Center for Continuing Education,University of Georgia, Athens. **March 21-24, 2001.** Contact: Cheryl McCormick, cheryl@uga.edu.

League of Environmental Educators in Florida (LEEF), annual conference, **March 22-25, 2001**. Leesburg, FL. Contact: eileen_tramontana@district.sjrwmd.state.fl.us

Association of Southeastern Biologists/Southern Appalachian Botanical Society/SE Chapter of Ecological Society of America/Tri-Beta: 62nd Annual Meeting, **April 4-7, 2001**. New Orleans, LA. Contact: www.loyno.edu/~asb

16th Annual Symposium, Florida Exotic Pest Plant Council, **September 12-14, 2001**, St. Augustine, FL. Contact: Kathy Burks, kathy.burks@ dep.state.fl.us

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