

## *Cornus sericea* L. in Ireland: an incipient weed of wetlands

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### ABSTRACT

*Cornus sericea* L. (Cornaceae) has been widely planted in wet habitats in Ireland as an ornamental shrub. It spreads through layering, and has become more or less naturalized at many sites. A list of Irish records is presented. *C. sericea* poses a threat to natural vegetation, especially to wetland woods.

### INTRODUCTION

*Cornus sericea* L., Red Osier Dogwood, a shrub from eastern North America, has also been known as *C. stolonifera* Michx., *Thelycrania sericea* (L.) Dandy and *Thelycrania stolonifera* (Michx.) Pojark. It differs from the native *C. sanguinea* L. in its white fruits, its brighter, usually blood-red twigs, conspicuous in winter, and its 'suckering' habit. *C. sericea* also differs in being adapted to habitats subject to waterlogging, where it has been widely planted as an ornamental. (It is often planted in company with *Salix alba* L. var. *vitellina* (L.) Stokes, Golden Willow, another ornamental whose twigs provide colour during the winter.) *C. alba* L., from northern Asia, is very similar to *C. sericea* but is 'non-suckering' and the stone of the fruit is differently shaped. *C. alba* is reported as an escape in Britain (Moore 1987), but not in Ireland.

### MODE OF PROPAGATION AND DEGREE OF NATURALIZATION

*Cornus sericea* is described by Cook (1968) as "cultivated for ornament and locally naturalized" in Austria, Britain, Finland and Switzerland. It is recorded in several local Floras as naturalized in England and Scotland from Kent (Philp 1982) to Angus (Ingram & Noltie 1981). In Wales, it is recorded from seven counties as an established alien of woodland and scrub (Ellis 1983). It was not included in the standard Irish Flora until the most recent edition (Webb 1977), where it is mentioned as "naturalized in a few places by rivers or in marshy ground". Scannell & Synnott (1987) record it from six Irish vice-counties, on the basis of my site records, all included below. Site records have already been published from West Galway (v.c. H16) (Webb & Scannell 1983) and Limerick (v.c. H8) (Reynolds 1988).

For the compiler of records this species is generally a borderline case: it is rarely quite wild, but it is commonly no longer to be regarded as cultivated. At most sites the species clearly owes its presence to deliberate planting, and the distances that it has spread are limited.

The proportion of flowers that set seed is normally low in Ireland, and I have searched in vain for seedlings at many localities. The increase of the species is very largely by lateral spread, by rooting from decumbent branches. The decumbent branches may grow horizontally at soil level for a few decimetres before turning up to form leafy shoots, which could be mistaken for juveniles derived from seed. This unspecialized form of vegetative reproduction seems best described as 'layering'; the plant is described as "suckering" by Moore (1987) and as "stoloniferous" by Cook (1968). However termed, the process means that a single bush can expand to form an extensive thicket. Vegetative propagation over longer distances may have taken place by means of detached pieces of shoot. A natural means of dispersal would be through the action of rivers in spate. The single bush on Foynes Island in the Shannon estuary (v.c. H8; Reynolds 1988) is the most convincing case for

natural dispersal. The site is not near houses, and there is no evidence of the species having been planted anywhere on the island. The site is within the reach of high tides, and it seems quite possible that a piece of the plant was washed up here, having been torn from the Shannon's banks somewhere upstream (e.g. from the station in Limerick city, v.c. H9). However, I have not found any cases of detached fragments in the process of becoming established, and I conclude that this must be, at best, a rare event.

ANNOTATED LIST OF IRISH RECORDS

The following is a list of all sites of naturalization or incipient naturalization of *Cornus sericea* in Ireland known to me; the records are mine unless otherwise stated.

- V.c. H2, N. Kerry: Ross Castle (ruin), S.W. of Killarney, GR V/95.88. Margins of wet woodland close to Lough Leane, spreading by layering, 1972–88, TCD; north of Reen Point, S.W. of Killarney, wet woodland, GR V/94.89, 1973–74.
- V.c. H8, Co. Limerick: Cappercullin Glen (southern end), Glenstal Abbey (formerly Glenstal Castle), Moroe, between Cappamore and Newport, GR R/73.56, dominant and spreading in wet bottom of narrow glen in old demesne, 1973–86. N.E. of Battery Point, Foynes Island, Shannon estuary, GR R/24.52, single bush about 2.5 m high and 4 m diameter, with many decumbent rooting branches, growing within a few metres of the top of the stony shore just above high water mark, surrounded by large *Salix cinerea* subsp. *oleifolia* and *Rubus fruticosus* agg., 1985–88, S. Reynolds (pers. comm.) and Reynolds (1988). Naturalized by the lakes in Curragh Chase demesne, between Askeaton and Adare, GR R/4.4, August 1985, S. Reynolds (pers. comm.) and Reynolds (1988). Adare, right (east) bank of R. Maigue, GR R/468.466, single small stand beside the bridge, at the foot of a garden, 1986–88.
- V.c. H9, Co. Clare: Limerick city between Sarsfield Bridge and the Treaty Stone, bank of R. Shannon, GR R/57.57, medium-sized colony, “suckering freely”, April 1985, P. S. Wyse Jackson (pers. comm.).
- V.c. H11, Co. Kilkenny: Dysertmore, S.W. of Inistioge, left (eastern) bank of R. Nore, GR S/65.33, single medium-sized colony in low-lying river fringe dominated by *Salix* spp., September 1988. S.W. of New Ross, roadside, GR S/69.26, three small patches in hedgerow, up to 3.5 m high, layering, September 1988.
- V.c. H12, Co. Wexford: R. Barrow near Mount Garret Bridge, N. of New Ross, naturalized on the left (eastern) bank, GR S/72.30 – “I have known it there for many years” (S. Reynolds, pers. comm., 1988).
- V.c. H14, Laois: Lowlands Wood, Abbeyleix estate, left (eastern) bank of R. Nore, GR S/42.82, locally dominant as an understorey species in alluvial woodland, forming thickets up to 4 m high under canopy of *Quercus robur* L. (less waterlogged sites) and *Salix cinerea* subsp. *oleifolia* (more waterlogged sites), 1972–89, TCD; Grantstown (Granston) Lough, between Rathdowney and Durrow, GR S/31.79 and S/31.80; former demesne of Grantstown Manor, wet woodland with many planted species; scattered beds of *C. sericea* fringing lake at northern and south-western ends, also on small island (crannog?) in the middle of the lake, May 1986.
- V.c. H16, W. Galway: R. Corrib, western bank, on the N.W. margin of Galway city, large thicket – “It is steadily spreading among native vegetation by suckering, and may by now be regarded as naturalized” (Webb & Scannell 1983).
- V.c. H19, Co. Kildare: Donadea Castle (ruin), Staplestown, ornamental lake, GR N/833.329, small stand on marshy lake-margin, “spreading by suckering”. 1985, P. S. Wyse Jackson (pers. comm.); 1987, D. L. K. & M. Sheehy Skeffington. Rye Water, Carton demesne, N.E. of Maynooth, wetlands by river and by tributary stream forming boundary with Co. Meath, GR N/95.38, forming dense thickets 2.5–5 m high, spreading by layering; includes an area with shallow braided streams between mud banks, with *Caltha palustris* L. and abundant *Ranunculus ficaria* L. growing under *C. sericea*, March 1987.
- V.c. H21, Co. Dublin: 1 km W. of Lucan, left (northern) bank of R. Liffey, GR O/024.352, two small stands c. 10 m apart, the lower branches subject to immersion, backed by deciduous woodland, 1987–89. R. Liffey, both banks, between Lucan and Palmerstown, GR O/05.35, O/05.36, O/07.35, O/08.35, O/09.35, occasional small stands at river margin, the lower branches

- subject to immersion, the stands spreading by layering, M. Norton & S. Reynolds (pers. comm.), D. L. K. & M. Sheehy Skeffington, 1988–89. Santry estate, Santry, GR O/408.165, in swampy woodland, growing rampant at the edge of a stream, 1982–86. P. S. Wyse Jackson (pers. comm.). Banks of R. Tolka near Ashtown, GR O/11.37, O/10.37, naturalized along river bank, 1988. M. Norton (pers. comm.)
- V.c. H22, *Meath*: Boyne Canal between Slane and Drogheda, close to the entrance to Townley Hall, GR O/035.755, April 1983, P. S. Wyse Jackson (pers. comm.). Daltonstown House, N. of Balrath (between Slane and Ashbourne), estate woods, GR N/99.66, forming dense thickets in damp cutover deciduous woodland, 1985–88. Rye Water, wetlands by river and tributary stream, Carton demesne (see entry under v.c. H19).
- V.c. H23, *Westmeath*: Clonhugh Woodland, Ballynafid, N. of Lough Owel, GR N/408.604, forming extensive thickets in swampy ground in semi-open woodland, spreading by layering, 1985–86, D. L. K. & S. F. Iremonger.
- V.c. H25, *Co. Roscommon*: Drummans Island (actually a promontory), Lough Key Forest Park (formerly demesne of Rockingham House), southern shore of Lough Key, GR G/84.04, wooded lake-margin, spreading by layering, 1973–86.
- V.c. H28, *Co. Sligo*: near Waterglade Garden, Aghamore, near south-western corner of Lough Gill, GR G/71.32, several bushes by roadside, October 1986. Near Hollybrook House, W. of Lough Arrow, GR G/77.12, small stand in hedge by main road, October 1986.
- V.c. H29, *Co. Leitrim*: south of Clooncoe Lough, near Rinn Lough, GR N/11.91, in wetland wood, spreading from road margin and forming thickets up to 3 m high, May 1984. Near Aghavas, N.E. of Mohill, GR H/1.0 or H/2.0, roadside, spreading by layering, August 1984, D. L. K., D. A. Webb & N. McGough.
- V.c. H33, *Fermanagh*: Crom Castle demesne, S.W. of Derrymacrow Lough, W. of Newtownbutler, GR H/36.24, small stands by side road in conifer plantation, up to 3 m high, spreading by layering (also forming scattered shrubberies in wetland below Crom Castle, clearly planted), June 1987.
- V.c. H36, *Tyrone*: Curran Lough, N.W. of Benburb, GR H/50.54, locally plentiful, 1988, J. S. Faulkner (pers. comm.). Augher Lake, GR H/560.538, 1988, I. McNeill (pers. comm.).
- V.c. 37, *Co. Armagh*: Caledon House estate by R. Blackwater, W. of Killylea, GR H/7.4, locally plentiful, 1988, J. S. Faulkner (pers. comm.).
- V.c. H39, *Co. Antrim*: Rea's Wood, fringing Antrim Bay at north-eastern corner of Lough Neagh, GR J/14.85, forming dense thickets up to 4.5 m high in the midst of damp deciduous woodland, spreading by layering (also planted at nearby big house – formerly Skeffington Lodge, now Deerpark Hotel), September 1986, D. L. K., R. Forbes & S. Beesley.
- V.c. H40, *Co. Londonderry*: between Kilrea and Garvagh, several patches and single bushes along a country road, GR C/895.134, C/887.135. "The largest and oldest is a stretch of about 50 metres starting from C895134 in the east"; this originated from "a couple of clusters of say 4 or 5 bushes on the road verge" planted in the 1930s. The bushes do not seem to be spreading, February 1989, D. S. Lambert (pers. comm.). These records are of the yellow-twigged variety, *C. sericea* var. *flaviramea* (Spaeth) Rehd., 'Golden Twig Dogwood'.

#### ECOLOGY AND AGGRESSIVENESS

*Cornus sericea* has been widely planted beside ornamental waters in parks and demesnes; it is clearly becoming naturalized at scattered localities throughout Ireland. Records are confined to lowland sites on more or less eutrophic soils, subject to varying degrees of waterlogging. A typical soil profile was investigated beneath a thicket of *C. sericea* in the Abbeyleix estate (v.c. H14, Laois; GR S/419.816), on river alluvium under a canopy of *Salix cinerea* subsp. *oleifolia*. The soil surface was covered by a thin layer of leaf litter and was almost devoid of herbs and bryophytes. The soil was a gley with a wet humus-rich horizon, making a gradual transition at 4–8 cm to a very wet, clayey horizon, grey-brown with orange mottling. The top 5 cm had a loss on ignition of 62% and a pH of 6.8 (1:1 water: fresh soil). Analyses gave total N = 6100  $\mu\text{g ml}^{-1}$  (22,600  $\mu\text{g g}^{-1}$ ), C/N quotient = 15.6, total P = 200  $\mu\text{g ml}^{-1}$  (750  $\mu\text{g g}^{-1}$ ), available K = 22  $\mu\text{g ml}^{-1}$  (83  $\mu\text{g g}^{-1}$ ) and available Ca = 2000  $\mu\text{g ml}^{-1}$  (7450  $\mu\text{g g}^{-1}$ ).

For the conservationist, the species is already of considerable significance. It is an aggressive

invader of natural and semi-natural wetland habitats, both open and wooded. Its extensive, dense thickets have no equivalent in our natural vegetation. The pre-existing herbaceous flora is almost totally suppressed, so species-rich communities are converted to species-poor ones. The most serious case known to me is in the alluvial woodland by the R. Nore in the Abbeyleix estate. A substantial portion of this historically important wood (Kelly & Fuller 1988) is now rendered impenetrable by dense thickets of *C. sericea*. The problem is reminiscent of the invasion by *Rhododendron ponticum* L. in woodlands on acid soils (Cross 1982), but the lack of seeding in *C. sericea* means that its control should be relatively straightforward. Ireland's wetland woods are diverse and full of interest; they are, however, sparsely distributed, small in area and subject to various other threats to their survival. Control of *C. sericea* should therefore be a matter of serious concern.

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