Rosa rugosa

Taxon	Family / Order / Phylum
Rosa rugosa Thunb. ex Murray, 1784	Rosaceae / Rosales / Plantae

COMMON NAMES (English only)
Rugosa rose
Japanese rose

SYNONYMS
Rosa ferox Lawrence
Rosa × *kamtschatica* Vent.
Rosa kamtschatica Vent.
Rosa regeliana Linden et André

SHORT DESCRIPTION
It is a small sprouting shrub that forms dense thickets, mainly in coastal habitats. The surface of the leaves is wrinkled, dark green, smooth above while pubescent and slightly sticky underneath. The twigs are stout and covered with thin, straight sharp spines of various sizes. The flowers are big (8-10 cm across) and can be white or light to dark pink. The fruits ("rose hips") are large and slightly flattened, shiny, deep red and ripen in late summer.

Close-up of *Rosa rugosa*
Photo: Franz Essl

BIOLOGY/ECOLOGY

Dispersal mechanisms
Seeds are dispersed by birds and small mammals.

Reproduction
It has hermaphroditic flowers which are insect pollinated. Self-fertilisation does also occur. Seeds are developed in large rose hips that are very tasty to animals (i.e. birds) and humans. The plants also reproduce by rhizomes. The formation of dense thickets occurs via vegetative reproduction by root suckers.

Known predators/herbivores
A large number of specialized herbivorous insects are associated with the genus *Rosa* in Europe, but few, if any species are strictly monophagous on *Rosa rugosa*, even in its native range.

Resistant stages (seeds, spores etc.)
Seeds in the soil can remain viable for several years; dormancy is broken by a long cold period.

HABITAT

Native (EUNIS code)
In the native range, *Rosa rugosa* colonizes mainly old, stabilised coastal sand dunes, forming shrubs with other woody species. If succession continues, the shrubs are finally replaced by dune forests.

Habitat occupied in invaded range (EUNIS code)
B1: Coastal dunes and sandy shores, B3: Rock cliffs, ledges and shores, including the supralittoral, E5: Woodland fringes and clearings and tall forb stands, F4: Temperate shrub heathland, FA: Hedgerows.

Habitat requirements
It shows a preference to open, fresh to dry habitats. It can colonize acidic and basic soil alike, and is able to invade nutrient-poor habitats.

DISTRIBUTION

Native Range

Native to East Asia, its range encompasses the Islands of Hokkaido, Sakhalin, the Kuriles and the coasts of Kamtchatka to northeastern China.

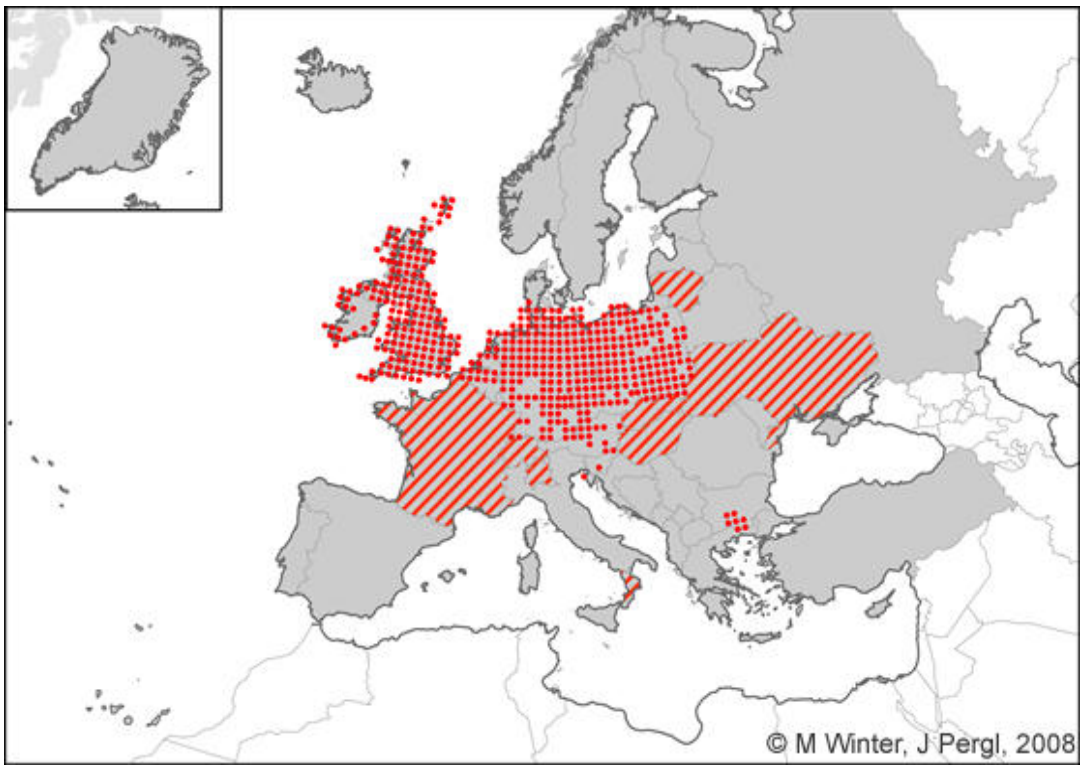
Known Introduced Range

It is widespread at the coasts of the North and Baltic Sea, as well as the northwest-European Atlantic coasts. In Central and Eastern Europe, it is a rather rare and only locally established alien.

Trend

Distribution area and population sizes have been increasing in the last few decades in the British Isles and Germany.

MAP (European distribution)



Legend

	Known in country		Known in CGRS square		Known in sea

INTRODUCTION PATHWAY

It was introduced to Europe as an ornamental plant in 1796, and during the 19th and 20th centuries it became a popular ornamental. The first records of naturalised populations are from Germany in 1845 and Denmark in 1875.

IMPACT

Ecosystem Impact

Once invaded, dune plant communities are altered to monospecific stands, with greatly reduced light availability and decreased number of native species.

Health and Social Impact

Invaded dunes are becoming impenetrable to humans due to the spiny thickets.

Economic Impact

It is also a common plant for landscaping e.g. along highways and in cities. Invaded coastal areas are misinterpreted, as in Denmark, and are displayed in tourist brochures and on postcards. It controls erosion on shores and riverbanks.

MANAGEMENT

Prevention

It is important to stop plantings in the countryside, particularly in coastal areas (= at least 50 km apart from the coast).

Mechanical

Hand grubbing of smaller populations is effective, but roots and rhizomes must be removed as far as possible to prevent recolonization. Grazing of goats or sheep is effective at destroying seedlings and older plants alike.

Chemical

Digging up the plants can be combined with herbicide application (e.g. glyphosate). For small areas a paintbrush can be used, for large areas hand carried or tractor driven devices are needed.

Biological

More insect and fungal species that may attack the species are found in its native range than in its introduced range. However, there are not any biological control methods described yet.

REFERENCES

Bruun H H (2005) *Rosa rugosa* Thunb. ex. Murray. Biological Flora of the British Isles 239. Journal of Ecology 93:441-470

Kowarik I (2003) Biologische Invasionen: Neophyten und Neozoen in Mitteleuropa. Ulmer, Stuttgart, pp. 238-241

Nobanis (2006) NOBANIS – Invasive Alien Species Fact Sheet: Rosa rugosa http://www.nobanis.org/files/factsheets/Rosa_rugosa.pdf . Cited 12 Oct 2006

OTHER REFERENCES

Anonymus (2006) Index Synonymique de la flore de France. http://www.dijon.inra.fr/flore-france/ . Cited 12 Sept 2006

Belcher CR (1977) Effect of sand cover on survival and vigor of *Rosa rugosa* Thunb. International Journal of Biometeorology 21:276-280

Bruun HH (2006) Prospects for biocontrol of invasive *Rosa rugosa*. BioControl 51:141-181

Erkamo V (1949) *Rosa rugosa* Thunb., ein für Europa neuer Neophyt. Archivum Soc. Vanamo 3:123

Härdtle W and Vestergaard P (1996) Veränderungen der Ufervegetation, Salzwiesen und Dünen. In: J.L. Lozan et al. (eds.): Warnsignale aus der Ostsee. Parey Buchverlag/Blackwell, Berlin, Germany, pp157-162

Hellemaa P (1998) The development of coastal dunes and their vegetation in Finland. Fennia 176:111-221

Isermann M (2003) *Rosa rugosa*-shrubland in dry coastal dunes. Verhandlungen der Gesellschaft für Ökologie 33:146

Neoflora (2006) Invasive gebietsfremde Pflanzen in Deutschland: Rosa rugosa. http://www.floraweb.de/neoflora/handbuch/rosarugosa.html . Cited 10 Sept 2006

Schepker H and Kowarik I (2002) Bekämpfung von Neophyten in Niedersachsen: Ursachen, Umfang, Erfolg. Neobiota 1:343-354

Tokarska-Guzik B (2003) The expansion of some alien plant species (neophytes) in Poland. In: Child LE, Brock JH, Brundu G, Prach K, Pysek P, Wade PM and Wiliamson M (eds.): Plant invasions: Ecological treats and management solutions. Backhuys Publishers, Leiden, The Netherlands, pp147-167

Ueda Y, Nishihara S, Tomita H and Oda Y (2000) Photosynthetic response of Japanese rose species Rosa bracteata and Rosa rugosa to temperature and light. Scientia Horticulturae 84, 3/4:365-371

USDA Plant Database (2006) Rosa rugosa. (http://plants.usda.gov) Cited 12 Sept 2006. National Plant Data Center, Baton Rouge, LA 70874-4490 USA

Author: Franz Essl

Date Last Modified: October 12th, 2006