***Lonicera japonica* Thunb.** Japanese honeysuckle
CAPRIFOLIACEAE

Synonyms: *Nintooa japonica* (Thunb.) Sweet

General Description.—Japanese honeysuckle, also known as woodbine and Chinese honeysuckle, is a semi-evergreen woody vine that forms mounds and mats on open ground and by twining, climbs shrubs, low trees, windfalls, and fences. The ropy stems, which have gray-brown, fissured to shredding bark, can extend 5.5 m or more and reach 10 cm in diameter in old plants. The wood is white, soft, and fine-grained. Young stems are reddish brown to light brown and about 3 mm in diameter with hollow pith. Roots are extensive, reaching 2.5 m laterally and 15 to 100 cm in depth. Opposite, light-green leaves are 2.5 to 12 cm long, ovate to oblong, entire to lobbed, with short petioles. The leaves are evergreen in tropical and subtropical settings and become late deciduous to deciduous in cooler temperate climates. The paired axillary flowers are 2 to 3 cm long, white (sometimes tinged with pink or purple) turning yellow, tubular with five lobes, fused in two unequal lips. The fruits are black, glossy, globose berries 4 to 6 mm in diameter containing two to 10 black seeds (Miller 1999, Munger 2002, Stephens 1973). Japanese honeysuckle is a diploid plant with 2n = 18 chromosomes (Schierenbeck and others 1995).

Range.—Japanese honeysuckle is native to Japan, Korea, China, and Taiwan (Bravo 2003, Pacific Island Ecosystems at Risk 2003). The species has naturalized in much of the United States except Alaska and a few states in the Northwest, northern Midwest, and Vermont (Natural Resources Conservation Service 2003). It has also naturalized in Puerto Rico (Liogier and Martorell 1982), Ontario, Canada (Munger 2002), Juan Fernandez archipelago, Chile (Sharma and others 1997), Australia, New Zealand, Christmas Island (Pacific Island Ecosystems at Risk 2003), England, Portugal, Corsica, Brazil, and Argentina (Nuzzo 2003). There are two generally accepted varieties, *chinensis* and *hilliana*. The latter is the variety commonly encountered in naturalized populations (Nuzzo 2003).

Ecology.—Japanese honeysuckle grows well in a wide variety of soils with a few exceptions such as coarse sands and poor peat soils (Munger 2002). It invades fencerows, roadsides, vacant lots, forest openings, understories of open forest stands, and abandoned pastures and fields. The species is present in nearly all the forest associations in the Southeastern U.S., the region where it is most common. Japanese honeysuckle is adapted to climbing small-diameter stems and sometimes smothers or strangles small trees. It cannot ascend trees with trunks larger than 15 cm in diameter (Nuzzo 2003). It grows best under full sunlight but can still survive with 25 percent of sunlight in a forest understory. Retaining leaves and photosynthesizing through all or part of the winter after canopy forest trees have defoliated helps plants survive through the summer in low-light conditions (Nuzzo 2003). Northern distribution of naturalized Japanese honeysuckle is limited by short growing seasons and late spring frosts, and is generally south of an isotherm where mean January temperature is -1 °C. It has not generally naturalized west of the 1000 mm mean annual precipitation limit (except where exogenous water is available), roughly corresponding with native hardwood forests. Japanese honeysuckle survives

fire by sprouting from stem tissue buried under litter and mineral soil. It generally disappears from communities (such as longleaf pine) where fires are frequent (Munger 2002).

Reproduction.—Japanese honeysuckle in the U.S. flowers from April through July (sometimes through October) varying by local climate (Nuzzo 2003). The flowers open in late afternoon and remain open for about 3 days (Nuzzo 2003). The flowers are pollinated by hummingbirds and insects (nocturnal hawkmoths and diurnal bees). The species requires pollen from genetically distinct individuals for successful pollination and as a result is pollinator limited. Naturally-pollinated flowers produced seeds in 17.4 percent of the resulting fruits while hand-pollinated flowers produced seeds in 78.7 percent of the fruits (Larson 2001). The seeds are dispersed primarily by birds. Germination of most seeds appears to occur in the spring following dispersal and occurs at similar rates in mineral soil and under leaf litter (Munger 2002). Japanese honeysuckle regenerates vegetatively by sprouting from underground stems and by the layering of above-ground stems that come in contact with the soil. Discarded prunings will also take root.

Growth and Management.—Seedlings grow slowly for the first 2 years but afterwards may extend their stems 1.5 m/year (Nuzzo 2003). The species begins bearing fruit at age 3 in full sun and at age 5 when growing in the shade. Fruit production generally peaks between ages 4 and 6 (Munger 2002). By fertilization, researchers were able to increase browse produced by Japanese honeysuckle by over 2,000 kg/ha and increase crude protein as well (Dyess and others 1994). The species is easy to propagate with cuttings and most ornamental plants are multiplied in this fashion. The greater challenge is to eliminate infestations of Japanese honeysuckle. Pulling and grubbing individual plants and small infestations can be effective but will require repeat visits to eliminate missed sprouts and new seedlings. Tethered goats can provide effective control for spot infestations (Bravo 2003). Over-the-top spraying with glyphosate, Dichlorprep + 2,4-D, picloram + 2,4-D, tebuthiuron, sulfometuron, or triclopyr will kill it (Nuzzo 2003) but also tend to eliminate most other plant species as well. A more selective method is to cut stems and apply the above mentioned herbicides to the cut surfaces (Bravo 2003). Mowing is ineffective (Nuzzo 2003).

Benefits and Detriments.—In spite of the invasive and weedy tendencies of the species, Japanese honeysuckle is still widely used as an ornamental. It is especially desirable in arid areas where it has little tendency to spread. Managed for screens and ground cover, Japanese honeysuckle is beautiful in and out of flower and especially captivating because of the strong and pleasant aroma of its blooms. Some gardeners favor it because it attracts hummingbirds. The fruits are toxic to humans if large quantities are eaten and result in vomiting, diarrhea, rapid heartbeat, respiratory failure, and coma. However, children suck the nectar from flowers without ill effects (Russell 1997). The species was formerly planted for erosion control and wildlife benefits. Planting is currently discouraged or prohibited because the species has dominated large areas and threatens sensitive native species (Nuzzo 2003). Japanese honeysuckle is important wildlife cover and an important, sometimes the most important, browse species for white tailed deer in Eastern and Southern United States. It is also eaten by cottontail rabbits, cattle, sheep, and goats. The leaves yield 8 to 12 percent crude protein and have an *in vivo* dry matter digestibility of 35 to 70 percent. Wild turkeys, northern bobwhite, and a number of songbirds eat the fruits (Munger 2002). Japanese honeysuckle tissues contain anti-complementary polysaccharides and polyphenolic compounds. Used in herbal medicine, extracts are reported to protect against cellular injury, help maintain vascular health, and prevent infections (Nuzzo 2003)

References

Bravo, M.A. 2003. Japanese honeysuckle, *Lonicera japonica* Thunb. Alien Plant Working Group, National Park Service, Washington, DC. http://www.nps.gov/plants/alien/fact/loja1.htm. 6 p.

Dyess, J.G., M.K. Causey, and H.L. Stribling. 1994. Effects of fertilization on production and quality of Japanese honeysuckle. Southern Journal of Applied Forestry 18(2): 68-71.

Larson, K.C. 2001. Lack of pollinators limits fruit set in the exotic *Lonicera japonica*. Botanical Society of America, Botany 2001 Abstracts. p. 39.

Liogier, H.A. and L.F. Martorell. 1982. Flora of Puerto Rico and adjacent islands: a systematic

synopsis. Editorial de la Universidad de Puerto Rico, Río Piedras, PR. 342 p.

Miller, J.H. 1999. Japanese honeysuckle, *Lonicera japonica*. Protection Report RX-PR 036. U.S. Department of Agriculture, Forest Service, Region 8, Atlanta, GA. 2 p.

Munger, G.T. 2002. *Lonicera japonica*. In: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Fire Effects Information System. http://www.fs.fed.us/database/feis/plants/vine/lonjap/all.html. 43 p.

Natural Resources Conservation Service. 2003. Plants profile: *Lonicera japonica* Thunb. http://plants.usda.gov/cgi_bin/plant_search.cgi?mode=Scientific+Name&keywordquery+Lonicera+japonica&earl=plant_search.cgi. 6 p.

Nuzzo, V. 2003. Element stewardship abstract for *Lonicera japonica*, Japanese honeysuckle. The Nature Conservancy, Arlington, VA. http://tncweeds.ucdavis.edu/esadocs/documnts/lonijap.html. 23 p.

Pacific Island Ecosystems at Risk. 2003. *Lonicera japonica* Thunb., Caprifoliaceae. http://www.hear.org/pier/lojap.htm. 3 p.

Russell, A.B. 1997. Poisonous plants of North Carolina, scientific name: *Lonicera japonica.* North Carolina State University, Charlotte, NC. http://www.ces.ncsu.edu/depts/hort/consumer/poison/Lonicja.htm. 2 p.

Schierenbeck, K.A., J.L. Hamricks, and R.N. Mark. 1995. Comparison of allozyme variability in a native and an introduced species of *Lonicera*. Heredity 75(1): 1-9.

Sharma, A., A. Murayama, T. Osaki, K. Ooi, T. Yahara, M. Ikegami, Silva-O., M. 1997. Plant conservation in the Juan Fernandez archipelago, Chile. Aliso 16(2): 89-101.

Stephens, H.A. 1973. Woody plants of the North Central Plains. The University Press of Kansas, Laurence, KS. 530 p.

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