

New Records of Alien Species in the Ohio Vascular Flora¹

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ABSTRACT. Examination of specimens of vascular plants from various herbaria, as well as field collections, have revealed 70 taxa not previously reported for Ohio, or previously reported without documentation. This paper documents these new taxa, 44% of which are escapes of woody landscape plants. The specimens cited represent 55 genera in 30 families. Of these, the following genera are first reports for the state: *Achyranthes*, *Albizia*, *Carthamus*, *Cercidiphyllum*, *Cotoneaster*, *Dactyloctenium*, *Fontanesia*, *Gaillardia*, *Guizotia*, *Gypsophila*, *Stenosiphon*, *Tripsacum*, and *Zinnia*. Cercidiphyllaceae is the only family reported as new for the state. Some taxa cited in this paper represent first reports as escapes for North America. These are *Cotoneaster divaricatus* (Rosaceae), *Fontanesia fortunei* (Oleaceae), *Magnolia x soulangeana* (Magnoliaceae), *Magnolia stellata* (Magnoliaceae), *Viburnum buddleifolium* (Caprifoliaceae), and *Viburnum x rhytidiphyllodes* (Caprifoliaceae).

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INTRODUCTION

The alien element in the Ohio vascular flora is dynamic. Taxa appear, flourish, and, occasionally, disappear on waves of disturbance. Agriculture, transportation, urbanization and a host of anthropogenic factors constantly alter habitats and introduce novelties into our flora. The term “biological pollution” has been coined for this process (Mack 1985). In light of more rapid transport of alien species from place to place and increased rates of disturbance in formerly natural areas, now, more than ever before, biological pollution is becoming a much greater threat to biological diversity. Invasive plant species are a threat to native plant diversity in several ways, especially replacement of a natural flora and diversity with a lower diversity stand of introduced species, replacement of native plant species necessary for the survival of native animal species, and potential extinction of native plant species (Cronk and Fuller 1995). It has been estimated that about 25% of the Ohio vascular flora is not indigenous to the state (Schaffner 1932, Stuckey 1991), and it is very likely that this percentage is increasing and will continue to increase (Reichard and Hamilton 1997), as evidenced by the species listed in this paper. We are defining “alien” as not occurring in Ohio at the time of substantial European presence in the present state boundaries, about 1750 (Schwartz 1997).

During the last few years, we have discovered many more unexpected species during the course of other research projects, and as a consequence, we began a concerted search for new non-native species in Ohio.

MATERIALS AND METHODS

Searches were conducted in the field by both authors for species previously not seen outside cultivation. In addition, herbarium specimens were presented to both authors for identification by many people, and some of

these proved to be new to the state. Specimens were also examined at the following herbaria: BAYLU, BHO, BGSU, CINC, CLM, CM, DAO, F, GA, GB, GH, ISC, KE, MICH, MO, MU, NA, NLU, NY, OS, OSH, UAM, UC, US, VDB, and VPI (herbarium acronyms from Holmgren and others 1990). No attempts were made in this study to relocate populations of species identified from herbarium specimens.

The standard references used to identify these new taxa include Andreas (1989), Braun (1961, 1967), Cooperrider (1995), Cusick and Silberhorn (1977), Fernald (1950), Fisher (1988), Gleason and Cronquist (1991), Voss (1972, 1985, 1996), and Weishaupt (1971), as well as other works cited with the species entries. Plant name author citations follow Brummitt and Powell (1992). Common names are taken from Gleason and Cronquist (1991), Griffiths (1994), and the USDA “Plants” database (<http://plants.usda.gov/plants/>).

RESULTS

Seventy taxa not previously reported for Ohio were found during this study (Table 1), representing 55 genera in 30 families. One new family (Cercidiphyllaceae) was found for Ohio, as were 13 new genera: *Achyranthes*, *Albizia*, *Carthamus*, *Cercidiphyllum*, *Cotoneaster*, *Dactyloctenium*, *Fontanesia*, *Gaillardia*, *Guizotia*, *Gypsophila*, *Stenosiphon*, *Tripsacum*, and *Zinnia*. In a few cases, the species listed was previously described for Ohio only incidentally, and voucher specimens documenting its occurrence are included in this list.

Six of the taxa are new reports for North America, based on literature searches, and comparisons with the checklist of North American taxa published by Kartesz (1994). These are *Cotoneaster divaricatus* (Rosaceae), *Fontanesia fortunei* (Oleaceae), *Magnolia x soulangeana* (Magnoliaceae), *Magnolia stellata* (Magnoliaceae), *Viburnum buddleifolium* (Caprifoliaceae), and *Viburnum x rhytidiphyllodes* (Caprifoliaceae).

The taxa are listed in alphabetical order by genus. Specimen citations are condensed; full information is available from the authors.

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TABLE 1

*Vascular plant taxa new to Ohio.**Acer campestre* L. (Aceraceae) - Hedge maple

BUTLER CO: weedy at edge of woods SW of Alexander Dining Hall, Miami University campus, Oxford, 16 Sep 1993, *Vincent 6305* (MU, NA, OS).

Hedge maple is mentioned by Braun (1961) as "frequently cultivated," and is included in her key but not described, illustrated, or mapped. It is also included in the key in Weishaupt (1971) without comment. Cooperrider (1995) states that this species (among others) is frequently planted and may escape, but it is not included in his key, descriptions, illustrations, or maps.

Acer ginnala Maxim. (Aceraceae) - Amur maple

BUTLER CO: weedy at edge of woods below McKee Hall, Miami University campus, Oxford, 12 Sep 1996, *Vincent 7504* (MU); HAMILTON CO: disturbed woods at Stanberry Park, Mt. Washington, 2 Jun 1988, *Cusick 27445, Baird & Thieret* (MU); WARREN CO: edge of disturbed woods, W slope of Little Miami River, S of Mathers Mills, Turtle Creek Twp, 23 Jul 1997, *Cusick 33953* (MU, OS).

Amur maple is also mentioned by Braun (1961) as "in cultivation." Cooperrider (1995) treats this species as he does hedge maple (see above). Ebinger (1996) describes this species as having the potential to become a major weed in northeastern US. Both Amur and hedge maples are listed in Kartesz (1994).

Achyranthes japonica (Miq.) Nakai (Amaranthaceae) - Japanese chaff flower

SCIOTO CO: floodplain woods along Ohio River, York Park, city of Portsmouth, 29 Oct 1992, *Cusick 30668* (CM, GH, MICH, MU, NY, OS), same location, 11 Oct 1994, *Cusick 32184* (GA, KE, MO, VPI).

This species was reported by Medley and others (1985) for Kentucky and West Virginia, and is apparently spread by water and small animals.

Albizia julibrissin Durraz. (Mimosaceae) - Silktree

GALLIA CO: on bank of Ohio River along St Rt 7, Addison, 16 Jul 1993, *Vincent 6236 & Lammers* (ISC, MU, NA); LAWRENCE CO: S-facing slope above Ohio River, US Rt 52, W of Hanging Rock, Hamilton Twp, 6 Oct 1992, *Cusick 30639* (CM, F, MICH, MU, NY, OS); SCIOTO CO: weedy roadside, Hayport & Keyport rds, SE of Wheelersburg, Porter Twp, 26 Jun 1996, *Cusick 33188* (CM, MO, MU, OS).

Ohio is not included in the range of this species in Isely (1990); it is native from Persia to central China (Rehder 1947).

Anemone blanda Schott & Kotschy (Ranunculaceae) - Windflower

OTTAWA CO: open, dry, limy field, Ballast Island, 3 May 1975, *Watterson s.n.* (CLM).

This commonly cultivated anemone is native to northern Turkestan, and many cultivars have been introduced (Griffiths 1994).

Berberis aquifolium Pursh (*Mahonia aquifolium* (Pursh) Nutt.)

(Berberidaceae) - Oregon grape

BUTLER CO: weedy, Bishop Woods, Miami University, Oxford, 2 Jun 1997, *Shockey 20* (MU); FRANKLIN CO: spontaneous under Norway spruce, 246 Piedmont Rd, Columbus, 9 Oct 1995, *Cusick 32843* (OS).

This species was reported previously in a note in the OSU Naturalist (Anonymous 1900), but the collection cited is not in herbarium OS, and the species has not been listed in other works on the Ohio flora. Ohio is not included in the range of this species in Whittmore (1997a). Auge and Brandl (1997) describe *B. aquifolium* as an aggressive invader, and present ecological data on seedling recruitment and clonal growth for the species in Germany.

Bromus erectus Huds. (Poaceae) - Erect brome

ERIE CO: dry, open ground, quarry at N end of Kelley's Island, 1

TABLE 1 (Cont.)

Jun 1985, *Oldham 4888 & Allen* (DAO, MICH), dry, open ground, old limestone quarry S of Ward Rd, Kelley's Island, 25 Sep 1996, *Cusick 33479A & Oldham* (MU).

Ohio is included by Pavlick (1995) in the range of this Eurasian brome. The entire state is shaded in Pavlick's map, though this species has been found in Ohio only on Kelley's Island. *Bromus erectus* rapidly has become locally abundant in well-drained, limy habitats throughout the northern and central parts of the island. The species is reported from Kentucky (Browne and Athey 1992).

Calamovilfa longifolia (Hook.) Scribn. var. *magna* Scribn. & Merr. (Poaceae) - Greater prairie sandreed

CUYAHOGA CO: piles of sand from Oceana Co, MI, Whiskey Island, city of Cleveland, 12 Sep 1980, *Bissell 80:177* (CLM); LUCAS CO: sand dune, Monclova Rd, Swanton Twp, 5 Sep 1972, *Easterly 4805* (BGSU), sand behind seawall, Maumee River, city of Toledo, 5 Sep 1979, *Carr 2245* (OS).

This grass may have been introduced into Ohio with shipments of sand from the upper Great Lakes, as documented by the Cuyahoga County specimen.

Carthamus tinctorius L. (Asteraceae) - Safflower

FRANKLIN CO: weedy edge along buildings, Spruce St, W of Park St, Columbus, 25 Oct 1996, *Cusick 33544 & Gardner* (OS); LUCAS CO: weedy ground, Irwin Prairie Preserve, Spencer Twp, 10 Jul 1988, *O'Meara s.n.* (OS).

Safflower is native to western Asia, and is cultivated as a garden plant and as a substitute for saffron (Griffiths 1994). It has also been grown as an oil plant (Reader's Digest Association 1985), and is sometimes included in bird seed mixes.

Centella asiatica (L.) Urb. (Apiaceae) - Spadeleaf

BUTLER CO: weed in flower bed, 609 French Dr, Oxford, 30 Aug 1992, *Vincent 5673* (MU).

A waif which apparently grew from seed in potting soil used to start bedding plants, the species did not persist. The specimen is the true *C. asiatica* with nearly sessile inflorescences, not *C. erecta* (L.f.) Fernald as described in Gleason and Cronquist (1991). It is listed in Kartesz (1994) as occurring outside cultivation in North America.

Cerastium brachypetalum Pers. (Caryophyllaceae) - Gray chickweed

ADAMS CO: sandy soil, rest area, US Rt 52, SE of Sandy Springs, Green Twp, 23 Apr 1996, *Cusick 32924* (MICH, OS); SCIOTO CO: grassy roadside, Hayport & Keyport rds, SE of Wheelersburg, Porter Twp, 6 May 1996, *Cusick 32968* (MICH, OS), det. R. K. Rabeler (MICH).

Rabeler and Cusick (1994) discuss the occurrence of this species in states adjacent to Ohio.

Cerastium dubium (Bast.) Guépin (Caryophyllaceae) - Doubtful chickweed

MADISON CO: grassy roadways & gravel parking areas throughout Molly Caren Agricultural Center, N of London, 9 May 1997, *Cusick 33695* (CM, MICH, MO, MU, NY, OS), det R.K. Rabeler (MICH).

In North America, this winter annual chickweed from Europe previously has been documented only from Arkansas, Illinois and Kentucky (Rabeler and Cusick 1994).

Cercidiphyllum japonicum Siebold & Zucc. (Cercidiphyllaceae) - Katsura tree

BUTLER CO: seedlings in shrubs, Shriver Center, Miami University campus, Oxford, 20 Jun 1996, *Vincent 7455 & Hickey* (MU), in sidewalk cracks, West Park Place, Oxford, 1 Apr 1998, *Vincent 8100* (MU); HAMILTON CO: in weedy woods near Spring Grove Cemetery, Cincinnati, Oct 1995, *Brunner s.n.* (MU).

Katsura tree has not previously been reported as an escape in

TABLE 1 (Cont.)

North America, although it is listed in Kartesz (1994). This dioecious species reproduces readily from seed, and is hardy north into USDA Zone 4 (Creech 1985).

Chenopodium rubrum L. (Chenopodiaceae) - Alkali-blite

FRANKLIN CO: moist, weedy edge of Boulevard Gardens Nursery, city of Columbus, 9 Oct 1995, *Cusick 32845* (MICH, OS), det. A. Reznicek (MICH).

This annual species is not reported for Ohio in Arbak and Blackwell (1982). Gleason and Cronquist (1991) list this species as "native from Indiana and Iowa to Washington and California, and occasionally adventive elsewhere." The cited collection is of *C. rubrum* var. *humile* (Hook.) S. Watson.

Cotoneaster divaricatus Rehder & E.H. Wilson (Rosaceae) - Spreading cotoneaster

BUTLER CO: in woods along bluffs overlooking creek, Peffer Park, Oxford, 28 Sep 1981, *Loconte 588* (MU), same locality, 25 Oct 1997, *Vincent 8095* (MU, OS); PREBLE CO: roadside along Preble Co Rd 97 near St Rt 127, Gaspar Twp sec 14, 8 Oct 1988, *Vincent 3086* (GB, MU)

This species is not listed by Kartesz (1994) as occurring outside cultivation in North America, though the following species is listed. It is native to central and western China, and produces prolific bright red fruits (Rehder 1947).

Cotoneaster simonsii Baker (Rosaceae) - Simons' cotoneaster

OTTAWA CO: adventive on limestone cliff, Gibraltar Island, 21 Jul 1971, *Thieret 33501* (OS), det. T. Duncan (UC).

Native to the Himalayas, Nepal, and Sikkim, this shrub is hardy in USDA Zone 5 (Griffiths 1994).

Cyperus microiria Steud. (Cyperaceae) - Asian flatsedge

FRANKLIN CO: moist, weedy ground, Oakland Nursery, city of Columbus, 1 Oct 1994, *Cusick 32152* (MICH, OS), same location, 30 Sep 1995, *Cusick 32831* (MU), det. A. Reznicek (MICH).

This Asian sedge recently was reported from western Kentucky (Mears and Libby 1995). It otherwise is known only from Long Island and eastern Pennsylvania (Gleason and Cronquist 1991).

Dactyloctenium aegyptium (L.) P. Beauv. (Poaceae) - Crowfoot-grass

ASHTABULA CO: Ashtabula Harbor, 6 Sep 1931, *Hicks s.n.* (KE). This grass is introduced from the Old World tropics and is found commonly on the coastal plain from North Carolina to Texas, and occasionally at more northern sites (Hitchcock 1950). It has been reported in Kentucky (Browne and Athey 1992).

Distichlis spicata (L.) Greene (Poaceae) - Seashore saltgrass

LAKE CO: open, bare flats, adjacent land has been filled during past years, Townline Rd, Pery Twp, 20 Sep 1991, *Bissell 91:242* (CLM).

Seashore saltgrass is found in mostly coastal areas, and sometimes more at more interior sites (Hitchcock 1950).

Echinochloa wiegandii (Fassett) McNeill & Dore (Poaceae) - Western barnyard grass

LAKE CO: along railroad by salt mine, town of Grand River, Painesville Twp, 20 Sep 1970, *Cusick 11488* (OS), same location, 18 Oct 1990, *Cusick 29303 & Baird* (OS).

This native species is easily confused with the introduced *E. crusgalli* (L.) Beauv., from which it can be separated by having only a few or no pustulate hairs on the spikelets (Dore and McNeill 1980, McNeill and Dore 1976).

Eragrostis hirsuta (Michx.) Nees (Poaceae) - Bigtop lovegrass

OTTAWA CO: sand, bar between Lake Erie and East Harbor, East Harbor State Park, 22 Oct 1980, *Cusick 20541* (KE, MICH),

TABLE 1 (Cont.)

sandy beach, East Harbor State Park, 6 Oct 1988, *Bissell 88:344 & Danielson* (CLM, MICH).

See comments under the following species.

Eragrostis trichodes (Nutt.) A.W. Wood (Poaceae) - Sand lovegrass

OTTAWA CO: dry, sandy beach along Lake Erie shoreline at East Harbor State Park at easternmost outlet, 10 Aug 1980, *Bissell 1980:149* (MU), East Harbor State Park at bathing beach N of Park Rd 22, 6 Oct 1986, *Cusick 26075* (MU), East Harbor State Park, sand above breakwall facing Lake Erie, 8 Sep 1988, *Cusick 27773 & Stuckey* (MU).

It is difficult to account for the presence of these two closely related grasses at East Harbor State Park. Unlike *Calamovilfa longifolia* cited above, they were not introduced with imported sand. The bathing beach at the park was created only with sand of local origin (I. Brolis, Park Manager, personal communication, 1997). Both species are occasionally cultivated as ornamentals, however (Griffiths 1994). Ohio is included in the range of *Eragrostis trichoides* by Fernald (1950), but the basis for that report is unknown.

Fagus sylvatica L. (Fagaceae) - European beech

HAMILTON CO: weedy wooded area near Spring Grove Cemetery, Cincinnati, Oct 1995, *Brunner s.n.* (MU).

This specimen is an escape of the widely cultivated cutleaf beech (var. *laciniata* Vignet). European beech is not listed in Gleason and Cronquist (1991) but is included in Kartesz (1994).

Festuca trachyphylla (Hack.) Krajina (Poaceae) - Hard fescue

CUYAHOGA CO: fields, Nottingham, 21 May 1902, *Stair s.n.* (CLM); WOOD CO: sandy soil, Graham Cemetery, S of Wayne, Montgomery Twp, 17 May 1990, *Cusick 28838* (MICH), det. A. Reznicek (MICH).

Gleason and Cronquist (1991) describe this European species as weedy and widely introduced.

Fontanesia fortunei Carrière (Oleaceae) - Fontanesia

BUTLER CO: escape growing in cracks in cement behind apartment building, Oxford, 7 Sep 1997, *Vincent 8001* (MU, OS).

This genus is not listed in Kartesz (1994) as occurring outside cultivation in North America. It is native to China, and hardy to USDA Zone 4 (Rehder 1947).

Gaillardia pulchella Foug. (Asteraceae) - Rosering blanket-flower

HENRY CO: Washington Twp sec 24, 6 Sep 1937, *Shanks s.n.* (OS); LUCAS CO: disturbed, sandy bank, Box Lane, Sylvania Twp sec 15, *Cusick 20261* (OS).

Gleason and Cronquist (1991) list this species as occurring in the manual range, but list no states in which it has been found. It is a commonly cultivated annual or short-lived perennial (Gleason and Cronquist 1991, Griffiths 1994).

Guizotia abyssinica (L.f.) Cass. (Asteraceae) - Nigerseed

BUTLER CO: weedy in flower beds near where bird feeders had been during the winter, 609 French Dr, Oxford, 30 Sep 1994, *Vincent 6860* (MU, OS); LORAIN CO: appeared in vegetable garden, 322 W College St, Oberlin, 21 Oct 1986, *Jones s.n.* (OS).

Nigerseed is cultivated in India and Ethiopia as an oilseed crop and is used commonly in bird seed mixes. It may produce viable seed in North America and could become a problem weed, since it is used so widely (McCarty 1980).

Gypsophila scorzonifolia Ser. (Caryophyllaceae) - Garden baby's breath

LUCAS CO: bank of Maumee River, Summit Ave, Toledo, 17 Jul 1979, *Carr 1636* (KE), in cinders, bank of Maumee River, Toledo, 19 Jul 1996, *Cusick 33,241* (MU).

Gleason and Cronquist (1991) and Voss (1985) report that this

TABLE 1 (Cont.)

Russian species is occasionally introduced. It was first reported for North America by Steyermark and others (1957). Pringle (1976) discusses the spread of the species in the Great Lakes area.

Hordeum geniculatum All. (Poaceae) - Mediterranean barley

LORAIN CO: bare soil seeded with annual rye in 1992, N of Oberlin, Russia Twp, 21 Oct 1994, *White s.n.* (CLM); OTTAWA CO: locally common, sandy soil by racetrack on county fairgrounds, E of Oak Harbor, Salem Twp, 18 Jun 1996, *Cusick 33149* (CM, MICH, MO, MU, OS).

This Mediterranean species is commonly introduced in the western United States, and only occasionally found in the east (Gleason and Cronquist 1991).

Juncus compressus Jacq. (Juncaceae) - Roundfruit rush

LUCAS CO: berm of Reed Rd, Swanton Twp sec 22, 7 Jun 1982, *Cusick 21641* (MICH, OS).

Stuckey (1981) presents a distributional history for this Asian species in North America and states that the species, once established, will likely persist, since it is perennial. Ohio was not included in his distribution map.

Leomurus sibiricus L. (Lamiaceae) - Honeyweed

BUTLER CO: weedy in vegetable garden, 609 French Dr, Oxford, 2 Nov 1996, *Vincent 7656* (MU).

Gleason and Cronquist (1991) mention this species as occasionally found in the manual range. It is widely grown as a honey plant (Pellett 1975).

Lonicera x xylosteoides Tausch (Caprifoliaceae) - Garden honeysuckle

OTTAWA CO: edge of weedy field, Erie St, South Bass Island, 18 May 1993, *Cusick 30864* (KE, MICH, OS), det. A. Reznicek (MICH).

This garden hybrid between *Lonicera tatarica* and *L. xylosteum* is widely cultivated (Griffiths 1994).

Magnolia x soulangeana Soul.-Bod. (Magnoliaceae) - Saucer magnolia

HAMILTON CO: weedy woods near Spring Grove Cemetery, Cincinnati, Oct 1995, *Brunner s.n.* (MU).

Neither this species nor the following are listed by Kartesz (1994). Saucer magnolia is of hybrid origin and very extensively cultivated, more so than either of the parent species (Rehder 1947). Griffiths (1994) describes this as the most widely planted magnolia.

Magnolia stellata (Siebold & Zucc.) Maxim. (Magnoliaceae) - Star magnolia

BUTLER CO: Weed under trees where starlings are known to roost, Bishop Woods, Miami University campus, Oxford, 10 Oct 1995, *Vincent 7169 & Seidel* (MU), same locality, 2 Jun 1997, *Shockey 41* (MU).

Star magnolia, a native of mountain woodlands in Japan, is very widely planted (Griffiths 1994, Rehder 1947).

Malus baccata (L.) Borkh. (Rosaceae) - Siberian crabapple

OTTAWA CO: edge of thickety field, SE of Catawba Rd, South Bass Island, 18 May 1993, *Cusick 30865*, (CM, MICH, OS); ROSS CO: thickets on gravel bank, E of Spring Bank Cemetery, S of Yellowbud, Union Twp, 27 Apr 1994, *Cusick 31561* (CM, MICH, OS).

A 1994 specimen from Lake County (OS) is not listed here since it has no indication of cultivated or wild status. The species is native to northeast Asia to northern China, and its many cultivars are very widely planted (Griffiths 1994).

Malus floribunda Siebold (Rosaceae) - Japanese flowering crabapple

BUTLER CO: weedy under trees where starlings are known to roost, Bishop Woods, Miami University campus, Oxford, 10 Oct 1995, *Vincent 7175 & Seidel* (MU, NA), same locality, 10 Jun 1997,

TABLE 1 (Cont.)

Shockey 51 (MU).

Japanese flowering crabapple is a beautiful and widely planted tree (Rehder 1947). It has been tested by the USDA for revegetation of spoil banks (McMinn and others 1980).

Malus sieboldii (Regel) Rehder (Rosaceae) - Toringo crabapple

CUYAHOGA CO: weedy edges, upland woods, NASA Lewis Research Center, city of Brook Park, 8 Aug 1995, *Cusick 32628* (MU, OS); LAKE CO: old fields, E of Big Creek, Concord Twp, 25 May 1989, *Bissell 89:68* (CLM).

Native to Korea and Japan, Toringo crab is a shrub to small tree, hardy in USDA Zones 5-7; it is sometimes called *M. toringo* Nakai (Eyewitness Handbooks 1996, Griffiths 1994, Rehder 1947).

Malus x zumi (Mats.) Rehder (Rosaceae) - Seibold's crabapple

BUTLER CO: weedy under trees where starlings are known to roost, Bishop Woods, Miami University campus, Oxford, 10 Oct 1995, *Vincent 7176 & Seidel* (MU, NA).

All four of these crab apple species are listed by Kartesz (1994) as occurring outside cultivation in North America.

Medicago sativa L. ssp. *falcata* (L.) Arcang. (Fabaceae) - Yellow alfalfa

CUYAHOGA CO: weedy ground by railroad, W 3rd St, Cleveland, 12 Jul 1990, *Cusick 29030* (MICH, OS); DARKE CO: along New Garden Rd, Harrison Twp sec 30, 10 Jul 1992, *Vincent 5521* (MU) [*M. sativa* L. ssp. *x varia* (Martyn) Arcang. was also found at the Darke County site, *Vincent 5522* (MU)]; OTTAWA CO: weedy ground by racetrack, county fairgrounds, E of Oak Harbor, Salem Twp, 28 Aug 1996, *Cusick 33340* (MICH, OS); SANDUSKY CO: Miller Blue Hole stream, Townsend Twp, 10 Aug 1959, *Pinkava s.n.* (OS).

The Darke County collection was made with typical alfalfa, which may have been planted on this roadside. Smith (1997) describes the introduction of yellow alfalfa into South Dakota.

Nicotiana glauca Graham (Solanaceae) - Tree tobacco

BUTLER CO: Weed in flower beds, probably arose from potting soil, Monroe, 13 Sep 1995, *Vincent 7157* (MU).

Tree tobacco, native to South America, is widely naturalized in the southwestern US, and is known to be extremely toxic to livestock and humans (Castorena and others 1987).

Parthenocissus tricuspidata (Siebold & Zucc.) Planch. (Vitaceae) - Boston ivy

BUTLER CO: growing out of cracks in asphalt and up side of building, Wells Mill Rd, Oxford, 30 Jun 1985, *Taylor 9269* (MU); CUYAHOGA CO: open, dry barrens along railroad, E side of Cuyahoga River, S of lakeshore, Cleveland, 18 Jun 1983, *Bissell 83:69* (CLM); FRANKLIN CO: spontaneous in flowerbeds, 246 Piedmont Rd, Columbus, 2 Sep 1995, *Cusick 32736* (OS).

Braun (1961) mentions Boston ivy as a cultivated species, giving no indication that it escapes, while Gleason and Cronquist (1991) state that it has escaped locally "here and there in our range."

Philadelphus tomentosus Wall. (Hydrangeaceae) - Downy mockorange

ALLEN CO: disturbed woods by old quarry, Bluffton, Richland Twp, 6 Oct 1997, *Cusick 34148* (OS); PAULDING CO: disturbed woods, terrace of Auglaize River, SE of Charloe, Brown Twp, 10 Jul 1996, *Cusick 33217* (MU, OS).

Griffiths (1994) states that this species is native to northern India and the Himalayas.

Pinus resinosa Aiton (Pinaceae) - Red Pine

HURON CO: isolated sapling in thickety field, S of Fayette Rd, ENE of Fitchville, Fitchville Twp, 14 Aug 1997, *Cusick 34025 & Obermiller* (MU).

Braun (1961) states that this species is extensively planted for

TABLE 1 (Cont.)

reforestation purposes. She includes the species in her key and species list, but gives no distribution map. Kral (1993) does not include Ohio in his range of the species.

Poa arida Vasey (Poaceae) - Plains bluegrass

CUYAHOGA CO: berm of I-71, Strongsville, 22 May 1995, *Cusick* 32392 (F, MU); DELAWARE CO: berm of I-71, S of Co Rt 72, Berkshire Twp, 28 May 1997, *Cusick* 33800 & *Schneider* (MU, OS); HAMILTON CO: berm, I-75 at I-275, Sharonville, 30 April 1986, *Cusick* 25137 (MICH, OS); MEDINA CO: berm of I-71, NE of Medina, 22 May 1995, *Cusick* 32393 (CM, KE, MU, OS); OTTAWA CO: berm of St Rt 53, at Paulsen Rd, Bay Twp sec 19, 29 May 1996, *Cusick* 33086 (CM, MICH, OS); WAYNE CO: median of I-71, S of West Salem, Congress Twp, 16 May 1994, *Cusick* 31628 (CM, KE, MICH, MU, NY, OS); WILLIAMS CO: berm of US Rt 127, N of Bryan, Pulaski Twp, 21 May 1996, *Cusick* 33052 (MO, MU, OS).

Plains bluegrass has spread rapidly along interstate highways in northern Ohio where salt is liberally applied in winter. Its colonization of this habitat parallels that of *Carex praegracilis* W. Boott (Reznicek and Catling 1987) and *Puccinellia distans* (Jacq.) Parl. (Cusick 1983). The leaves are more intensely blue than those of any other wild-growing grass in Ohio. Despite its conspicuous coloration, this species is under-represented in herbaria due to the difficulty of collecting in areas of high vehicular traffic. Oldham and others (1995) document a similar rapid spread of *Poa arida* along highways in southern Ontario and mention in passing the occurrence of this species in Ohio.

Polygonum arenastrum Boreau (Polygonaceae) - Ovalleaf knotweed

HAMILTON CO: barren ground along US Rt 50, S of North Bend, Miami Twp, 27 Sep 1988, *Cusick* 27868 (MU, NY, OS); LORAIN CO: compacted earth along Lake Erie, mouth of Black River, city of Lorain, 14 Sep 1993, *Cusick* 31316 (CM, MICH, OS); LUCAS CO: moist ground along railroad, Manhattan Blvd, city of Toledo, 17 Sep 1986, *Cusick* 25907 (CM, KE, MICH, NY, OS), waste ground, Tiffin Ave, city of Toledo, 14 Oct 1987, *Cusick* 27171 (MU); MUSKINGUM CO: cinders of railroad bed, St Rt 666, S of Riverview, 3 Oct 1996, *Cusick* 33510 (CM, MU, OS).

Hobbs (1992) did not separate this prostrate knotweed from *Polygonum aviculare* L. in the Ohio flora. The species is recognized here following Mitchell and Dean (1978).

Prunus cerasifera Ehrh. (Rosaceae) - Cherry plum

FULTON CO: fencerow, Rose Hill Cemetery, Co Rt R-S, SW of Lyons, Chesterfield Twp, 8 May 1992, *Cusick* 30185 (CM, OS); MAHONING CO: edge of woods on disturbed slope, Yellow Creek Park, Struthers, 28 April 1993, *Cusick* 30756 (OS); MONTGOMERY CO: Twin Creek Park, E of Eby Rd, SE of Germantown, 2 Oct 1994, *Dister s.n.* (MU).

Cherry plum is a shrub to small tree with red to yellow fruits to 3 cm wide. It is native to Asia Minor and the Caucasus (Griffiths 1994).

Prunus domestica L. (Rosaceae) - Plum

ASHTABULA CO: weedy thickets between railroad yard & 15th St, Ashtabula, 4 May 1993, *Cusick* 30777 (CM, MICH, OS); CUYAHOGA CO: thickets, mouth of Cuyahoga River, Whiskey Island, Cleveland, 9 May 1980, *Bissell 80:14* (CLM); LAKE CO: base of disturbed slope facing Lake Erie, SW of Mentor Headlands, Mentor Twp, 6 May 1993, *Cusick* 30807 (CM, OS); OTTAWA CO: thickets, W of Catawba Rd, SW, dead-end of St Rt 53, Catawba Island, 8 May 1995, *Cusick* 32325 (CM, MU, OS).

The plum, a commonly cultivated fruit tree, is listed in Gleason and Cronquist (1991) as occasionally escaping along roadsides and fencerows. It is probably native to western Asia and southern Europe and may be of hybrid origin (Griffiths 1994, Rehder 1947).

TABLE 1 (Cont.)

Prunus subhirtella Miq. (Rosaceae) - Higan cherry

BROWN CO: weedy fencerow, W side US Rt 52, Aberdeen, Huntington Twp, 27 Mar 1997, *Cusick* 33566 (MU).

Higan cherry is native to Japan, and is widely cultivated (Griffiths 1994). It is not listed by Kartesz (1994) as occurring as an escape in North America.

Prunus tomentosa Thunb. (Rosaceae) - Nanking cherry

OTTAWA CO: cliff face, Gibraltar Island, 21 Jul 1971, *Thieret* 33500 (OS).

This species, known as downy or Nanking cherry, is a spreading shrub with red fruits, and is commonly cultivated (Griffiths 1994, Rehder 1947). It is not listed in Gleason and Cronquist (1991).

Pyrus calleryana Decne. (Rosaceae) - Callery pear

BUTLER CO: In weedy disturbed woods along US Rt 27 just S of Chestnut St, Oxford, 4 Nov 1995, *Vincent* 7201 (MU, NA, OSH, VDB), Bishop Woods, Miami University, Oxford, 10 Jun 1997, *Shockey* 44 (MU), in sidewalk cracks, West Park Place, Oxford, 1 Apr 1998, *Vincent* 8099 (MU); HAMILTON CO: weedy woods near Spring Grove Cemetery, Cincinnati, Oct 1995, *Brunner s.n.* (MU).

Callery pear is listed in Kartesz (1994), but not Gleason and Cronquist (1991). Given its widespread use in landscape planting (Anonymous 1986), it is likely to become a frequent escape.

Ranunculus parviflorus L. (Ranunculaceae) - Smallflower buttercup

ATHENS CO: about swine and cattle barns, county fairgrounds, Athens, 13 May 1997, *Cusick* 33714 (CM, MU, NY, MICH, OS).

This European species is not listed for Ohio by Whittemore (1997b). Gleason and Cronquist (1991) describe the species as "found here and there in our range as a weed."

Rhamnus trifolia (Weston) W.J. Hess & Stearn (Rhamnaceae) - Dahurian buckthorn

MONTGOMERY CO: Huffman Prairie, Wright-Patterson Air Force Base, Oct 1994, *Gorchov s.n.* (MU).

Gleason and Cronquist (1991) list this northeast Asian species as sparingly introduced. It has also been called *R. daburicus* and *R. davurica* (Griffiths 1994, Rehder 1947).

Rhodotypos scandens Makino (Rosaceae) - Jetbead

BUTLER CO: moist woodland at edge of Acton Lake halfway between spillway and Hueston Woods lodge, Hueston Woods State Park, 2 Jul 1981, *Werth & others Ox2al* (MU), woods NE of Boyd Hall, Miami University Western College campus, Oxford Twp, 24 Oct 1996, *Vincent & others* 7655 (MU); FRANKLIN CO: levee along W bank of Olentangy River, N of Dodridge Ave, Columbus, 5 May 1980, *Carr* 2692 (OS), ravine, Overbrook Drive between N High St and E Cooke Rd, 8 May 1989, *Lowden* 4030 (OS); HAMILTON CO: an escape in mesic woods, Anderson Twp, 16 Jul 1955, *Braun s.n.* (US); MEDINA CO: roadside bank, Hood Rd, Medina Twp, 4 Jun 1965, *Mutz* 799 (KE); MIAMI CO: disturbed bank of Greenville Creek, Greenville Falls Nature Preserve, SW of Covington, Newberry Twp, 21 Aug 1996, *Cusick* 33306 (CM, MU, OS); OTTAWA CO: a few plants at edge of woods and near cultivated area, Rattlesnake Island, 14 Aug 1967, *Stuckey* 5036 (OS).

Although this species is included by Braun (1961) in her *Woody Plants of Ohio*, it is neither mapped nor illustrated. Gleason and Cronquist (1991) mention the species as occasionally escaped from cultivation, but do not key or describe it. Jetbead is hardy from USDA Zones 4-8, and is very durable and disease resistant (Schnelle 1992). A Lucas County specimen from 1924 (OS) bears no notation as to its wild or cultivated status.

Rumex acetosa L. (Polygonaceae) - Eurasian green sorrel

LORAIN CO: in front of Warner Hall, Oberlin, 17 Jun 1889,

TABLE 1 (Cont.)

Metcalfe s.n. (OS).

Gleason and Cronquist (1991) describe the Eurasian green sorrel as occasional "from Connecticut and Pennsylvania northward."

Salsola collina Pall. (Chenopodiaceae) - Slender Russian thistle

MUSKINGUM CO: old railroad yards, foot of Market St, Zanesville, 23 Sep 1982, *Cusick 22195* (OS); STARK CO: cinders in Conrail yard, between Harmont and Broadway Aves, Canton, 15 Aug 1979, *Carr 1970* (KE).

This Asian species and its distribution are discussed by Mosyakin (1996). It is reported from Kentucky (Browne and Athley 1992).

Salvia farinacea Benth. (Lamiaceae) - Mealycup sage

FRANKLIN CO: weedy edge between railroad and shopping center, Indianola Ave, Columbus, 10 Nov 1997, *Cusick 34166* (MU).

Mealycup sage is not reported by Gleason and Cronquist (1991). This species, widespread in cultivation, is native to Mexico (Griffiths 1994), and is listed by Kartesz (1994) as occurring in North America.

Sisymbrium trio L. (Brassicaceae) - London rocket

FRANKLIN CO: weedy edges, farmers market, Park & Spruce Sts, Columbus, 19 Nov 1994, *Cusick 32217* (CM, OS).

This European species is listed for Ohio in Fernald (1950), but no Ohio specimen at GH or elsewhere has been located. Gleason and Cronquist (1991) list it as occasionally found. Neither Easterly (1964, 1965) nor Weishaupt (1971) mention this species. It is common in the southwestern United States, and is only found occasionally elsewhere (Rollins 1993).

Stachys sylvatica L. (Lamiaceae) - Whitespot

DARKE CO: on abandoned railroad track just N of Rt 49, along US Rt 127, Greenville Twp, 27 Jun 1985, *Vincent 851 & Taylor* (KE, MU, NLU), det. J.B. Nelson (USCH).

This species is not mentioned by Gleason and Cronquist (1991), but is listed by Kartesz (1994).

Stenosiphon linifolius (Nutt.) Heynh. (Onagraceae) - False gaura

MONTGOMERY CO: in prairie site at Bergamo, Mt. Saint John Nature Preserve, near Dayton, 2 Sep 1993, *Turner s.n.* (MU).

Stenosiphon is locally common in the Great Plains region, where it is found on rocky prairies, stream valleys, and roadsides (Great Plains Flora Association 1986). Skinner and others (1983) describe this species as a limestone glade species and present evidence that it is endangered in Missouri.

Suaeda calceoliformis (Hook.) Moq. (Chenopodiaceae) - Plains sea-blite

ASHTABULA CO: pavement edge, St Rt 535, N of St Rt 307 Harpersfield Twp, 16 Sep 1982, *Bissell 82:320* (CLM); CUYA-HOGA CO: median of St Rt 2 W of county line, Euclid, 29 Sep 1982, *Bissell 82:341* (CLM), open gravel along entrance ramp, Brainerd Rd to Rt I-271, Lyndhurst, 21 Sep 1985, *Bissell 85:381* (CLM); GEauga CO: gravel, St Rt 44, 1 mi S of county line, Chardon Twp, 29 Sep 1984, *Bissell 84:168* (CLM); LAKE CO: saline soil along railroad, St Rt 306, Mentor, 29 Aug 1979, *Carr 2211* (KE, OS), moist, weedy ground by salt mine, St Rt 44, town of Grand River, Painesville Twp, 18 Oct 1990, *Cusick 29301 & Baird* (CM, KE, NY, MU); MEDINA CO: median berm, Rt I-71, N of US Rt 224, Guilford Twp, 4 Aug 1988, *Bissell 88:320* (CLM).

This species is locally common in northeast Ohio along highways heavily salted in winter. It was treated as synonymous with *S. depressa* (Pursh) S. Watson by Hopkins and Blackwell (1977), but Gleason and Cronquist recognize the species as distinct. Neither source lists it as occurring in Ohio.

Taxus cuspidata Siebold & Zucc. (Taxaceae) - Japanese yew

BUTLER CO: Bluff overlooking Collins Run, south edge of

TABLE 1 (Cont.)

Oxford, 25 Oct 1997, *Vincent 8096* (MU).

Dreyer (1996) states that this species has the potential to become a serious weed, due to its widespread use as a landscape plant. It is listed in Kartesz (1994).

Tilia europea L. (Tiliaceae) - European linden

BUTLER CO: Bishop Woods, Miami University, Oxford, 29 Aug 1997, *Vincent 7995* (MU).

This species is listed as *Tilia x vulgaris* Hayne in Kartesz (1994).

Trifolium resupinatum L. (Fabaceae) - Persian clover

HAMILTON CO: Anderson Twp, 27 May 1945, *Braun 1250* (OS).

Gleason and Cronquist (1991) describe this European native clover as introduced in grass seed, and widely scattered. It is widely cultivated in southern US, and found as a lawn or roadside weed (Gillett 1985).

Tripsacum dactyloides (L.) L. (Poaceae) - Eastern gamagrass

CLERMONT CO: US Rt 52, ca 2 mi E of Chilco, 14 Jul 1985, *Baird 129* (CINC, KE, MU), roadbank and ditch, US Rt 52, 1.5 mi NW of Rural, Franklin Twp, 27 Aug 1985, *Cusick 24744* (MU, KE); GALLIA CO: grassy roadside, St Rt 7 along Ohio River, S of Clipper Mills, 30 Sep 1993, *Cusick 31376* (MICH, MU).

Eastern gamagrass is found on in moist places, such as stream banks, in much of the eastern United States (Hitchcock 1950), and is sometimes cultivated as a forage crop (Hardin 1994).

Veronica peregrina L. var. *xalapensis* (H.B.K.) H. St. John & J.R.

Warren (Scrophulariaceae) - Hairy purslane speedwell

FRANKLIN CO: spontaneous in topsoil about ornamental plantings, Fountain Square, Morse Rd, Columbus, 3 Jun 1993, *Cusick 30980* (KE, OS), topsoil in flowerbed, 246 Piedmont Rd, Columbus, 20 Jul 1995, *Cusick 32607* (OS).

This western variety grew mixed with the common variety *pergrina* at both these sites, but was much less frequent. No Ohio specimens were cited by Pennell (1935).

Veronica verna L. (Scrophulariaceae) - Spring speedwell

OTTAWA CO: grassy strip between harbor and Bay View Ave, Put-in-Bay, South Bass Island, 18 May 1993, *Cusick 30859* (KE, MICH).

Veronica verna is widespread in Ontario in parks, picnic areas, and other disturbed sites on sandy soil (Crins and others 1987). It was not included by Pennell (1935) as occurring in North America, but Gleason and Cronquist (1991) state that it is established in more or less open, disturbed areas.

Viburnum buddleifolium C.H. Wright (Caprifoliaceae) - Buddleia viburnum

BUTLER CO: along trail through Peffer Park, Oxford, 14 Apr 1997, *Martz 42* (MU).

Buddleia viburnum is native to central China (Griffiths 1994).

Viburnum plicatum Thunb. (*V. tomentosum* Thunb.) (Caprifoliaceae) - Doublefile viburnum

BUTLER CO: weedy under trees where starlings are known to roost, Bishop Woods, Miami University campus, Oxford, 10 Oct 1997, *Vincent 7170 & Seidel* (MU), same locality, 10 Jun 1997, *Shockey 58* (MU), floodplain of Four-Mile Creek, E of Marcum Conference Center, Oxford, 18 Oct 1996, *Vincent 7648* (MU); HAMILTON CO: S border of Hazelwood Preserve, Montgomery, 13 Aug 1996, *Cusick 33298 & Becus* (MU).

Kartesz (1994) lists this species as naturalized in North America.

Viburnum x rhytidophylloides J.V. Suringar (Caprifoliaceae) - Lantanaphyllum viburnum

BUTLER CO: weedy under trees known to be starling roosts,

TABLE 1 (Cont.)

Bishop Woods, Miami University campus, Oxford, 18 Oct 1994, *Vincent 6908* (MU), same locality, 18 Oct 1996, *Vincent 7649* (MU); FRANKLIN CO: disturbed wooded slope on W side of Griggs Dam, 0.7 mi S of Fishinger Rd bridge, Columbus, 20 Mar 1995, *Cusick 32245 & Woischke* (MU); WARREN CO: disturbed bank of Little Miami River, NE of mouth of Caesar Creek, S of Corwin, Wayne Twp, 23 Jul 1997, *Cusick 33955* (MU, OS).

This garden hybrid between *V. rhytidophyllum* Hemsl. and *V. lanitana* L. is commonly cultivated on the Miami University campus and elsewhere in Ohio. Over 30 plants were seen in a quick survey of the Bishop Woods in 1996.

Zinnia elegans L. (Asteraceae) - Zinnia

BUTLER CO: weedy in unmowed lawn, 609 French Dr, Oxford, 7 Sep 1991, *Vincent 5040* (BAYLU, MU, UAM); OTTAWA CO: roadside, Middle Bass Island, 30 Jul 1970, *Roberts 669* (OS).

The common garden zinnia occasionally escapes from cultivation (Gleason and Cronquist 1991). It was not reported from Ohio by Fisher (1988).

DISCUSSION

Many of the taxa in this compilation are of horticultural origin, reflecting a continuing process of introduction which threatens native species and plant communities (Luken and Thieret 1996, Randall and Marinelli 1996). Woody plants of horticultural origin (31 of 70) make up 44% of the list. Other species are nursery weeds, and were probably conveyed in topsoil around the roots of ornamental plants.

Predicting whether any of these species will become an invasive weed is problematic. Reichard and Hamilton (1997) present characteristics of potentially invasive woody species, as well as a flow diagram to be used in deciding whether a new woody plant species should be introduced. Using their criteria (such as invasive relatives, early reproductive maturity, lack of seed pretreatment requirements), several of the woody plants on our list may likely become problems, such as the *Malus*, *Pyrus*, and *Viburnum* species.

In conclusion, we present evidence that many new non-native species are being introduced into the Ohio flora. While some of these may not persist, many may, and could become problem weeds. This paper also presents evidence of the dangers of introduction of new plant taxa (especially via horticultural practices) when the results of those introductions are untested. In the future, attempts should be made to relocate populations of taxa cited in this paper, as well as to document the degree to which each has spread from cultivation.

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