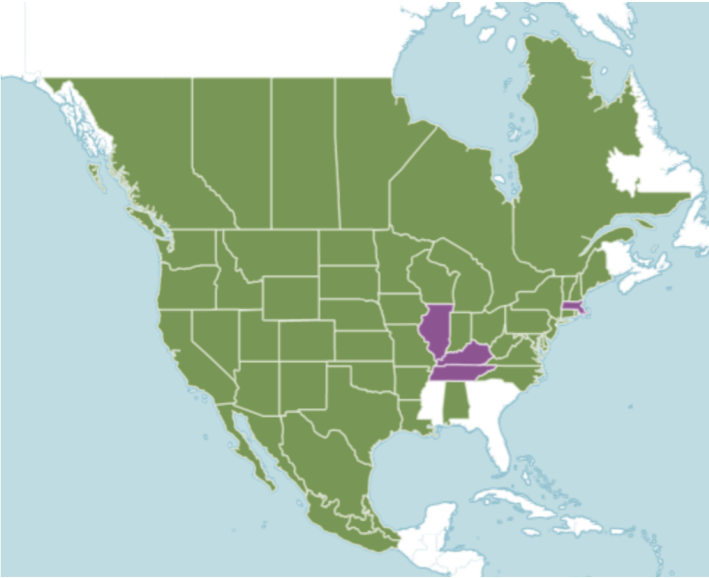
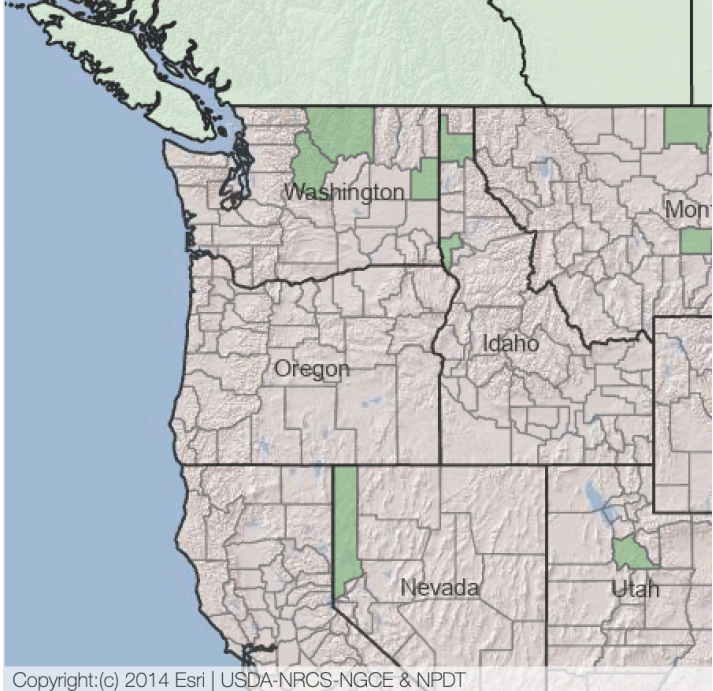


Plant Propagation Protocol for *Mirabilis nyctaginea*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2025/MINY.pdf>

TAXONOMY	
Plant Family	Nyctaginaceae
Scientific Name	<i>Mirabilis nyctaginea</i>
Common Name	wild four o'clock
Species Scientific Name	
Scientific Name	<i>Mirabilis nyctaginea</i> (Michaux) MacMillan
Common Synonym(s)	<i>Allionia nyctaginea</i> Michaux, <i>Calymenia nyctaginea</i> (Michaux) Nutt., <i>Oxybaphus nyctagineus</i> (Michaux) Sweet.
Common Name(s)	wild four o'clock, heartleaf four o'clock, heartleaf umbrellawort
Species Code (as per USDA Plants database)	MINY
GENERAL INFORMATION	
Geographical range	 <p>[5] North American range. Green native, purple introduced.</p>

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	<p>[6] Local Pacific Northwest range</p>
<p>Ecological distribution</p>	<p>Gravelly or dry soil, weedy on disturbed sites. Hardy in USDA zones 3-10 [12]</p>
<p>Climate and elevation range</p>	<p>Temperate, 100-2200 m [5, 10]</p>
<p>Local habitat and abundance</p>	<p>Dry valleys and plains, frequently found on disturbed, weedy sites [4]. Associated with limestone gravel soils [8]. Able to colonize a wide variety of sites, and can also grow along riverbeds and in heavily cultivated soils [12, 10].</p>
<p>Plant strategy type / successional stage</p>	<p>Drought tolerant, quickly colonizing weed on disturbed sites. Is often outcompeted if growing in fertile soil [7]. Broken pieces of roots can resprout allowing the plant to regenerate after disturbance or attempted removal. A thick taproot up to 2 feet deep assists in drought tolerance. Roots strongly branched [11]. Long distance seed spread can occur when inflorescences catch on vehicles, equipment [3].</p>
<p>Plant characteristics</p>	<p>Perennial deciduous herbaceous flower to 4 ft tall with deep taproot. Opposite leaves 4x3 inches, heart or egg shaped, smooth, upper leaves smaller. Stems oppositely branching. Flowers in clusters of 3-5 on stalks, petals are actually sepals, no real corolla, bracts at base. Seeds hairy, wrinkled [3]. Flowers open in the late afternoon and are pollinated by insects at night;</p>

	flowers wilt and drop in the morning. Purple to pink, sometimes white flowers [8]. Early summer flowers produce chasmogamous flowers, late summer flowering plants produce cleistogamous flowers [1].
PROPAGATION DETAILS: FROM SEED	
Ecotype	
Propagation Goal	Plants
Propagation Method	From seed
Product Type	Container (plug)
Stock Type	
Time to Grow	1 year
Target Specifications	Root-tight container
Propagule Collection Instructions (how, when, etc.)	Collect seeds by hand from dried out bracts left after flower fades. Seeds are mature and ready for collection when they become dark in color [12]. Seed set from July to September, potentially to November [11, 8].
Propagule Processing/Propagule Characteristics	Seeds about 4 mm, 6,600 seeds per ounce. Store in a cool dry place [12]. Longevity unknown; in seed bank expected to be viable for a few years [3].
Pre-Planting Propagule Treatments	None needed, sow directly early spring if sowing outside. Can also be sown outside in fall and allowed to naturally stratify and germinate in spring [12, 7, 8]. Bleach, H2O2, or fungicide soak could be an option to clean collected seeds if pathogens arise.
Growing Area Preparation / Annual Practices for Perennial Crops	Bareroot: outdoor sowing late fall to early spring. clear of weeds. Sow in flats with drainage holes to then transplant to larger pots or sow directly into cones. A media suggestion based on a congeneric species <i>M. multiflora</i> consists of 1.5 parts vermiculite, 1 part sterile sand, 1 part coarse Turface, 2 parts peat moss. 13:13:13 NPL Osmocote fertilizer may be incorporated into media.
Establishment Phase Details	Keep media slightly moist through stratification (if applicable) and germination [2, 12].
Length of Establishment Phase (time from seeding to germination)	10-14 days after sowing in germination conditions [12].

Active Growth Phase	Transplant germinants once cotyledons emerge (if originally sowed in flat) into deeper pot. Avoid excess water but don't allow pots to dry completely [2, 12].
Length of Active Growth Phase	Tentatively: April - July if July is to be considered beginning of seed set [11, 8].
Hardening Phase	Irrigate only when nearly dry [2]. Exposure to natural climatic conditions will induce hardening and preparing for dormancy as winter approaches.
Length of Hardening Phase	Assume would begin to go dormant September-November after going to seed. Deciduous, will overwinter underground.
Harvesting, Storage and Shipping	
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	Plant in spring (after overwintering) or fall Once mature and established, only water in dry weather. Prefers dry, well draining soil. Easily self seeds [7, 8].
Other Comments	<i>Mirabilis nyctaginea</i> is considered a Class A noxious weed in the state of Washington. It is prohibited to buy, sell, transport, or distribute plants, plant parts, and plant seeds into or within Washington state. Capable of spreading over hundreds of acres and impacting agricultural and range lands [11].

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