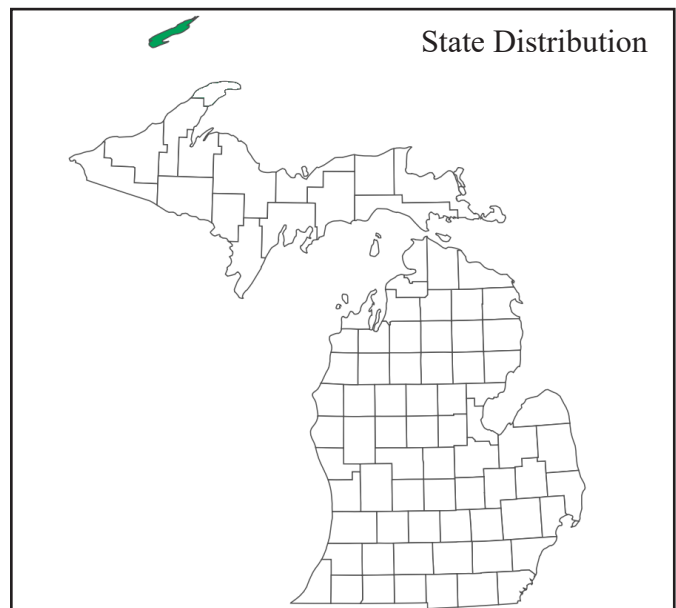


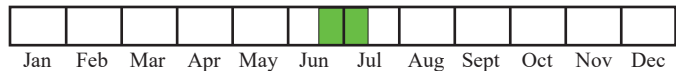


Photographs by Emmet Judziewicz, UW-Stevens Point



State Distribution

Best Survey Period



Status: State Threatened

Global and state rank: G1 (Critically Imperiled) / S1 (Critically Imperiled)

Other common names: Ragwort

Synonyms: Included in *Senecio pauperculus* in *Michigan Flora, Part III* (Voss 1996)

Family: Asteraceae – daisy or aster family

Taxonomy: *Packera* belongs to the order Asterales, family Asteraceae, subfamily Asteroideae, and tribe Senecioneae (Stevens 2026). Its placement in Senecioneae is based on the presence of capitula (i.e., composite flower head) with a uniseriate involucre (Pelser et al. 2007). The genus is distinguished from its former association with *Senecio* by gross morphology, molecular and palynological data and cytological evidence of chromosome counts of $x=22$ or $x=23$, compared to *Senecio*'s $x=10$ and its differing morphological traits (Trock 2003). Although a comprehensive understanding of evolutionary relationships within Senecioneae remains incomplete, recognition of *Packera* has gained

broad acceptance over the past 25 years, largely due to molecular and cytological studies, despite some taxonomists continuing to question its validity (Trock 2003). Isle Royale ragwort has a distinctive hexaploid genetic makeup ($2n=ca. 66+66$), which is considered cytologically unusual in the genus *Packera* (Kowall et al. 2011).

Total range: Isle Royale ragwort is a Michigan endemic species: its global range is restricted to less than 40 square miles on the isolated island of Isle Royale in northern Lake Superior near the Canada and U.S. border (Kowal et al. 2011, NatureServe 2026). It's currently known from only one occurrence on Isle Royale (MNFI 2026).

Recognition: Isle Royale ragwort is an erect, herbaceous perennial with **overwintering buds at ground level that arise singly from adventitious root shoots and short ascending rhizomes**. Stems are 16.5-31.2 cm (6.5-12.28 in) tall. **Basal rosette leaves are prominent** and medium to dark green with occasionally splotchy purple coloration on the undersides of blades and with **cobwebby (i.e., arachnoid) pubescence** on both leaf surfaces but often becoming glabrate with age. **Basal leaf**



blades have bases truncate or abruptly contracted to the petiole and are broadly elliptic to ovate or nearly orbicular with rounded leaf tips and margins with approximately 6–14 teeth per side. **Cauline leaves from base to inflorescence become reduced in size.** Lower cauline leaves are similar in size to basal rosette leaves and also have petioles. Middle leaves are sessile, narrowly oblong and lobed near the base. Uppermost leaves are reduced to bracts in the inflorescence. The inflorescence forms a sub-umbellate cyme that resembles an umbel, with branches arising from slightly different points, where the central flowers bloom first, followed by the lateral ones. The cluster typically bears 1–7 flowering heads. Each involucre consists of about 21 phyllaries. **Ray and disk florets number 66–101, typically with 13 yellow ray florets.** Achenes are glabrous (Kowal et al. 2011, Reznicek et al. 2026).

Isle Royale ragwort could be mistaken for other species in the *Packera* and *Senecio* genera, where its members were formerly placed. Isle Royale ragwort can be distinguished from members of *Senecio* by 1) its **prominent basal leaves**, which are absent in *Senecio*, and 2) **leaves become progressively smaller toward the inflorescence**, whereas in *Senecio* they remain relatively uniform in size from the lower stem to near the inflorescence (Reznicek et al. 2026).

Isle Royale ragwort is superficially similar to the rayed form of rayless mountain ragwort (*Packera indecora*) and new populations of ragworts should be carefully inspected to differentiate the two (Abraham Stone, MNFI, personal communication). It can be distinguished from rayless mountain ragwort by Isle Royale ragwort's consistent **presence of ray and disk florets**, the presence of **cobwebby (i.e., arachnoid) pubescence on basal leaves**, and vigorous asexual reproduction via **adventitious roots and small ascending rhizomes** (Kowal et al. 2011, Reznicek et al. 2026). Isle Royale ragwort is differentiated from northern ragwort (*Packera paupercula*) by the morphology of the basal rosette leaves: in Isle Royale ragwort, leaves are broadly

elliptic to ovate or orbicular and the **leaf bases are typically truncate or abruptly contracted to the petiole**, whereas in northern ragwort, leaves are lanceolate to narrowly elliptic and the leaf bases are generally obtuse or gradually tapering (Kowal et al. 2011, Reznicek et al. 2026).

Best survey time/phenology: The best time to observe Isle Royale ragwort is during its flowering period from the third week of June to the second week of July (Kowal et al. 2011, MNFI 2026).

Habitat: Isle Royale ragwort grows in a lightly shaded, dry-mesic northern forest natural community within a larger volcanic bedrock glade complex of rocky openings on thin, calcium-rich soils over greenstone (i.e., metamorphosed basalt). The population occurs in close proximity to a large, north-facing volcanic cliff (Abraham Stone, MNFI, personal communication, Kowal et al. 2011).

Common woody associates include balsam fir (*Abies balsamea*), serviceberry (*Amelanchier* spp.), bush-honeysuckle (*Diervilla lonicera*), glaucous honeysuckle (*Lonicera dioica*), white spruce (*Picea glauca*), quaking aspen (*Populus tremuloides*), and thimbleberry (*Rubus parviflorus*) (Kowal et al. 2011).

Common herbaceous associates include wild sarsaparilla (*Aralia nudicaulis*), spreading dogbane (*Apocynum androsaemifolium*), harebell (*Campanula rotundifolia*), poverty grass (*Danthonia spicata*), large-leaved aster (*Eurybia macrophylla*), wild strawberry (*Fragaria virginiana*), spurred gentian (*Halenia deflexa*), round-lobed hepatica (*Hepatica americana*), Canada hawkweed (*Hieracium kalmii*), wild lily-of-the-valley (*Maianthemum canadense*), cow-wheat (*Melampyrum lineare*), one-sided pyrola (*Orthilia secunda*), rough-leaved rice-grass (*Oryzopsis asperifolia*), and northern heart-leaved aster (*Symphotrichum ciliolatum*). Rare plant associates include northern paintbrush (*Castilleja septentrionalis*, State Threatened) and ram's head lady-slipper (*Cypripedium arietinum*, State Special Concern) (Kowal et al. 2011).



Biology: Isle Royale ragwort is an herbaceous, perennial forb. This species is a hemicryptophyte, an adaptation that enables survival in extreme environments such as windswept volcanic bedrock glades and openings, as well as the severe climatic conditions of its habitat. This growth form minimizes exposure to harsh elements by maintaining buds at or near the soil surface. It is known to reproduce vigorously by adventitious roots and elongate rhizomes along the soil surface. Isle Royale ragwort is thought to be largely self-incompatible (i.e., no self-pollination). Crossing experiments indicate some genetic variation within the population, suggesting that sexual reproduction occurs to some extent, despite the prevalence of asexual reproduction and dense rosette formation, which could otherwise suggest a single clonal origin (Kowal et al. 2011).

Pollinators of Isle Royale ragwort have not been documented; however, given the similarity in floral morphology, size, and structure to other members of *Packera* and the Asteraceae family, it is reasonable to infer that this species shares similar pollination syndromes. *Packera paupercula* has been reported to be pollinated by mason bees (*Osmia* spp.) (Catling 2015). Pappus on the fruits, similar to other Asteraceae species, strongly suggests that Isle Royale ragwort is wind-dispersed (Jepson Flora Project 2026).

The evolutionary origin of Isle Royale ragwort is considered relatively recent, following Isle Royale's emergence and deglaciation approximately 11,200 years ago. After a substantial lake-level decline around 9,300 years ago which exposed more of the island for further vegetative colonization, it is hypothesized that hybridization between *Packera indecora* and a tetraploid race of *Packera paupercula* triggered a speciation event: The result is the hexaploid Isle Royale ragwort. Both proposed parental species occur on Isle Royale, and the tetraploid form of *Packera paupercula* was likely present historically. More work is needed in order to shed light on this aspect of the taxon (Kowal et al. 2011).



Photograph by Avery Allert, iNaturalist

Figure 1. Basal leaves have cobwebby pubescence and truncate or abruptly contracting bases.

Conservation/management: Isle Royale ragwort is State Threatened, because its population is confined to a single, isolated location, making the extinction of the species highly probable due to a single disturbance event, such as high intensity wildfires, or long-term climatic changes resulting from global warming. Extreme weather events and erratic, unpredictable precipitation—anticipated to increase under long-term global climate change—pose the greatest threats to this species' persistence, given its narrow habitat requirements and limited spatial distribution (Di Capua and Rahmstorf 2023, Xue et al. 2022). Browsing by rabbits and other small mammals could pose a potential threat to this species; however, no research has been conducted, and no records explicitly confirm this as a threat. White-tailed deer—serious browsers of many rare plants across the region—are absent from the island.

The population is likely secure from most direct anthropological disturbances within Isle Royale National Park due to the park's conservation status, the island's isolation, low seasonal human presence, minimal development, extensive high-quality habitats, limited anthropogenic impacts, and relatively low occurrence of non-native invasive species to date. Park regulations restricting camping





Photograph by [luna_travels](#), iNaturalist

Figure 2. Mid-cauline leaves are narrowly oblong and lobed.

and fires to designated sites help minimize human impacts on natural areas and wildlife. However, the population's proximity to a moderately to heavily traveled footpath poses one of the more significant risks to population stability and a pathway for the spread of invasive species that may threaten *P. insulae-regalis*. Non-native hawkweeds (*Hieracium* spp.) and Canada bluegrass (*Poa compressa*) present serious threats, as competition with non-native species could degrade habitat and reduce available space for persistence (Kowal et al. 2011).

Additional surveys across the Isle Royale archipelago are recommended. Although Isle Royale ragwort is currently known from a single location, the island's vast size, numerous surrounding islands, rugged terrain, and remoteness leave much of the area botanically underexplored, suggesting that other populations may exist (Abraham Stone, MNFI, personal communication).

Comments: Isle Royale ragwort is the only known endemic species on Isle Royale. The epithet *insulae-regalis* means "of Isle Royale," indicating its endemic status (Kowal et al. 2011).

Research needs: The biology of Isle Royale ragwort remains poorly understood, and substantial

research is needed to clarify its life cycle, reproductive strategies, and overall life history. Further investigation into ecological interactions—such as pollinators, seed dispersal mechanisms, potential predators, and pathogens—would provide valuable insight. Its evolutionary origins also require study to better understand the taxon's parentage, along with additional phylogenetic work to resolve ongoing disputes among taxonomists regarding the validity of the genus *Packera*. The effects of fire and fire exclusion have not been examined, yet such knowledge could inform current and future conservation strategies and park management. Responses to climate change remain unexplored but will likely become increasingly relevant. Research on current and potential non-native invasive species is also lacking and would be critical for effective management and long-term preservation of this species. This viability of this population has not yet been assessed and ranked and conducting such an evaluation would be an important step toward understanding its status at this site and informing future conservation and management strategies. In addition, comprehensive surveys across Isle Royale and its surrounding islands are strongly recommended to better determine the species' current distribution and identify factors influencing its conservation and management needs. Such surveys would help guide



habitat protection, restoration efforts, and long-term monitoring strategies.

Related abstracts: Northern ragwort (*Packera indecora*), ram's head lady's-slipper (*Cypripedium aurietinum*), northern paintbrush (*Castilleja septentrionalis*), volcanic bedrock glade, dry-mesic northern forest, northern bald, volcanic cliff, boreal forest.

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Photograph by [luna_travels](#), iNaturalist

Figure 3. Flowerheads after seeds were spent.

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