Illinois Monarch Project
10-Year Progress Report

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ILLINOIS
MONARCH
PROJECT

Document Summary

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Executive Summary

The Illinois Monarch Project 10-Year Progress Report presents the first comprehensive assessment of the state's progress toward the goals outlined in the Illinois Monarch Action Plan. This analysis was undertaken to assess changes in monarch habitat, particularly milkweed stem abundance, across Illinois between 2014 and 2024. This analysis also evaluates the diverse landscape of voluntary conservation that supports monarch butterfly in Illinois. By revisiting and updating the original habitat modeling approach, integrating new datasets, and incorporating insights from statewide stakeholder interviews, this evaluation provides an updated, evidence-based understanding of how Illinois' collective conservation actions have shaped monarch habitat over the past decade.

To accomplish this, the University of Illinois Chicago (UIC) research team used a two-pronged analysis approach. First, a geospatial–tabular analysis replicated the original milkweed habitat model used to inform Illinois' goal of adding 150 million stems of milkweed. This analysis was enhanced with additional datasets including field survey data, online commitments, participation databases, and documented conservation actions. The second component included a series of structured interviews with conservation practitioners, agency personnel, land managers, and community leaders to capture qualitative insights on trends in engagement and on-the-ground implementation.

The results show that Illinois has added an estimated 108 million milkweed stems over the 10-year period, which means the state is more than two-thirds toward its Action Plan goal of 150 million stems by 2038. Rights-of-way lands accounted for nearly half of all new stems added, largely through transportation and utility conservation commitments. Significant gains also came from targeted agricultural programs, especially the pollinator habitat conservation practice (CP42) within the Conservation Reserve Program, and from improvements in grassland and protected natural areas. Urban lands, though smaller in acreage, contributed meaningful additional gains through distributed community-scale plantings, waystations, municipal pledges, and public engagement campaigns. These findings demonstrate that voluntary conservation is diverse in participation and is producing habitat benefits.

At the same time, the analysis found constraints that limit the precision, visibility, and scalability of conservation outcomes. Data gaps in agricultural and urban sectors, challenges in tracking voluntary efforts, lack of monitoring, and the absence of coordinated statewide leadership all contribute to uneven knowledge of habitat distribution and impact. Stakeholders consistently emphasized the need for stronger coordination, improved communication, and accessible systems for documenting habitat contributions, particularly for small but numerous community-based efforts. The gains achieved to date demonstrate that cross-sector partnerships can drive measurable landscape change when supported by scientific guidance and widespread public engagement. As regulatory contexts evolve and ecological pressures persist, Illinois' ability to sustain and accelerate habitat improvements will depend on its capacity to unite agencies, landowners, organizations, and communities around a shared conservation vision.

Illinois is at an important moment in its statewide monarch conservation. With a diverse network of partners, and demonstrated progress, the state is well-positioned to create lasting, resilient conservation outcomes that can ensure monarch butterflies, and the ecosystems they depend on, continue to thrive across Illinois for decades to come.

Background

History of the Illinois Monarch Project

The Illinois Monarch Project (IMP) was established in 2016 in response to long-term declines in the eastern monarch butterfly population and the loss of milkweed and habitat across Illinois. The IMP was formed as a collaborative effort among agencies, organizations, and individuals following an inaugural Monarch Butterfly Summit hosted by the Illinois Department of Natural Resources (IDNR) in September 2016. Through a series of subsequent meetings, participants collaborated to form goals, objectives, and actions to increase voluntary conservation for the monarch butterfly across agriculture, rights-of-way, urban, and natural lands landscapes in Illinois. This effort culminated in the Illinois Monarch Action Plan (Action Plan), published in September 2020 (Illinois Monarch Project 2020).

In parallel, representatives from Illinois also participated in the development of the Mid-America Monarch Conservation Strategy in 2019. This multi-state strategy established a goal of adding 1.3 billion milkweed stems between 2014 and 2038 across a 17-state geographic area (including Illinois) (MAFWA 2023). The IMP, in turn, identified Illinois' contribution towards this regional goal. The Action Plan identifies the addition of 150 million milkweed stems across Illinois landscapes by 2038 (as measured above the 2014 baseline year). This stem goal assumes milkweeds are located within habitats containing nectar sources as well for monarch butterflies. The strategies identified in the Action Plan are designed around supporting this goal.

Purpose

Since the publication of the Action Plan, the IMP and stakeholders across Illinois have advanced several voluntary conservation initiatives across agriculture, rights-of-way, natural lands, and urban landscapes. The purpose of this progress report is to evaluate how these collective efforts have contributed to Illinois' monarch habitat goals and learn from the lessons of voluntary conservation in Illinois over the past 10 years. The progress report includes a quantitative assessment of monarch habitat changes across the landscape since the baseline year of 2014. The insights gained from this evaluation can inform the future of monarch butterfly conservation, and other large voluntary conservation initiatives.

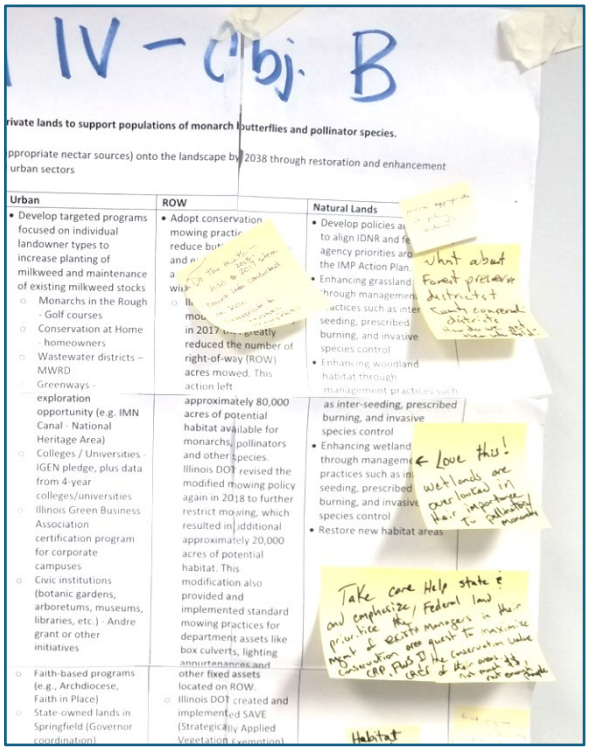


Image. Collaboration and brainstorming from an April 2019 workshop led to the objectives, strategies, and actions included in the original Action Plan.

Progress Evaluation Overview

This progress report describes the two-part evaluation conducted by the IDNR in collaboration with the University of Illinois Chicago's Sustainable Landscapes program (UIC). First, it revisits the habitat modeling approach used in 2018 to establish the regional

and state milkweed stem targets and compares model estimates for milkweed stem densities between 2014 and 2024 conditions. The modeling analysis incorporates information from field research conducted since 2016, as well as data from the IMP annual pledge, Monarch Watch Waystations, the National Wildlife Federation Mayors Monarch Pledge, the U.S. Fish and Wildlife Service's (USFWS) Monarch Conservation Database, and the Monarch Butterfly Candidate Conservation Agreement with Assurances (CCAA). The second part of the evaluation included a series of interviews with individuals and organizations involved in the IMP, monarch conservation, and related programs in Illinois. By integrating these data sources, the report assesses progress toward milkweed and habitat targets as well as advancement toward other goals and objectives identified in the Action Plan. Together, this evaluation and progress report provide a comprehensive, updated assessment of Illinois' statewide monarch conservation that can shape future habitat modeling and conservation strategies moving forward.

Status of the Monarch Butterfly

Population Status and Trends

The eastern monarch butterfly population consists of those butterflies that migrate between the Midwest and Eastern United States, southeastern Canada, and overwintering sites in central Mexico. The population has declined by more than 80% from its peak abundance in the mid-1990s (Figure 1). During the 2024–2025 overwintering season, surveys documented monarchs occupying 1.79 hectares. While nearly double the previous year's 0.9 hectares (which was the second lowest ever recorded), the population has remained below the long-term average of 2.8 hectares in four of the last five years and well below the 6 hectares goal that scientists consider necessary for long-term population viability. Ongoing threats like habitat loss in the U.S. and Canada, climate change, herbicide impacts on milkweed availability, and pressures in overwintering forests continue to put the migratory population at risk.

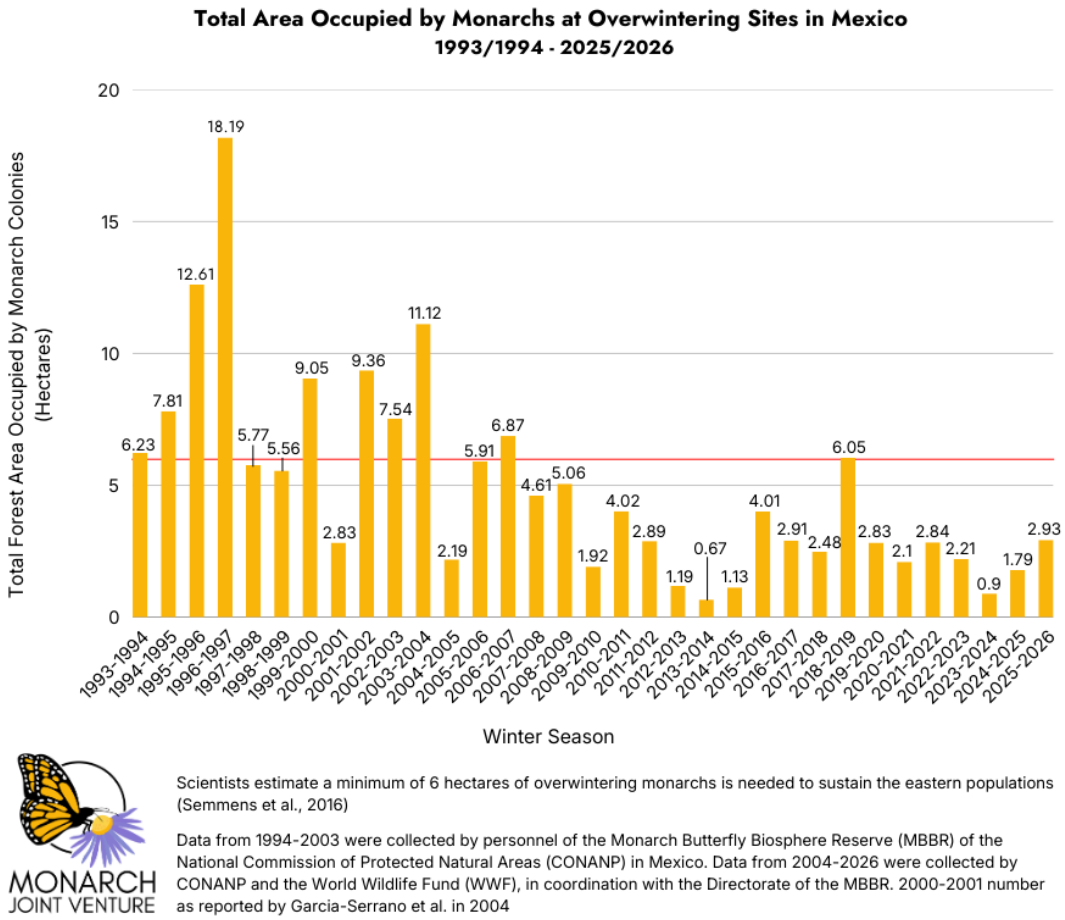


Figure 1. Monarch Population Trend as Documented by the Total Area Occupied by Monarchs at the Overwintering Sites in Mexico (Monarch Joint Venture 2026)

Regulatory Status

At the federal level, the monarch butterfly is not yet listed under the U.S. Endangered Species Act (ESA), but its regulatory status is in transition. In December 2024, the U.S. Fish and Wildlife Service issued a proposed rule to list the monarch as a Threatened species under the ESA, paired with a proposed 4(d) rule to allow targeted regulatory flexibility while providing species-specific protections. As of February 2026, the proposal remains under review, with a final determination anticipated in the coming years. The proposal reflects concerns that persistent population vulnerability, combined with long-term habitat pressures, warrants federal protection.

In Illinois, a federal ESA listing would automatically trigger an equivalent state listing under the Illinois Endangered Species Protection Act (ILESPA). State law incorporates all federally listed species into the Illinois List of Endangered and Threatened Species without requiring a separate state-level review process. As a result, if the monarch butterfly becomes federally listed, it would immediately receive state protections, potentially influencing land use practices, regulatory compliance requirements, and conservation planning across agriculture, transportation, energy, natural lands, and urban landscapes.

Land Use and Conservation Adoption Modeling

Analysis of the IMP's 10-year progress on milkweed abundance in Illinois involved a combination of geospatial analysis, land cover and land use modeling, and incorporation of stakeholder interviews and insights. The analysis, described in Appendix A, provides a detailed assessment of the modeling approach used to evaluate changes in milkweed abundance across Illinois from 2014 to 2024. Building upon the original model used to inform Illinois' 150 million milkweed stem target, the research team re-assessed statewide milkweed stem counts, then refined those estimates using updated land cover data, along with field-collected and stakeholder data. This approach allowed the UIC research team to incorporate more current, localized, and program-specific data not available when the original model was developed.

Across all land uses and sectors evaluated, Illinois added approximately 98 million milkweed stems over the 10-year period. The rights-of-way sector contributed the largest increase, while significant gains were also documented in agricultural lands enrolled in the CP42 pollinator habitat practice, as well as protected natural areas. Urban lands also supported milkweed and habitat gains through distributed community-scale plantings, municipal pledges, and conservation gardens.

The analysis also identified several limitations. The lack of geospatial data and uncertainty in conservation program reporting, and limited research on milkweed densities limit the precision of these modeled estimates. Land cover changes highlight the continued influence of land conversion on habitat availability. Overall, the findings demonstrate that Illinois has made substantial progress toward its 2038 milkweed stem goal and that voluntary conservation efforts are producing measurable benefits envisioned by the original Action Plan. The analysis also underscores the need for continued coordination, monitoring of conservation outcomes, and more consistent reporting of commitments to support long-term conservation planning.

Assessing Stakeholder Action

In addition to the habitat modeling analysis, the UIC research team also conducted stakeholder interviews with individuals and organizations engaged in IMP collaboration. The team also analyzed and summarized findings from the last five years of the IMP annual pledge. Together,

these data informed the perspectives and trends observed by stakeholders engaged in the IMP and Action Plan strategies. This analysis is described in Appendix A.

The stakeholder interviews conducted for this progress report reveals how monarch conservation in Illinois has evolved since publication of the Action Plan. Participants interviewed described a shift from a monarch-specific focus to a broader emphasis on pollinator conservation. While monarchs remain a powerful symbol, many interviewees observed that statewide energy and enthusiasm peaked between 2018 and 2021 and has gradually declined since. This likely reflects capacity limits, competing priorities, and fatigue among some conservation workers and volunteers. Participants noted barriers in tracking, reporting, and aligning their contributions with statewide goals. Without centralized coordination or shared platforms for sharing outcomes, stakeholders often feel disconnected from a broader conservation community and uncertain about how their work fits into the statewide strategy.

Personal passion and concern for monarch butterflies remains strong. Individuals and organizations that continue to engage in monarch-related initiatives do so largely because of their own commitment. This pattern reflects both the strengths and limitations of voluntary conservation: dedicated champions drive actions, but face challenges when coordination, recognition, or capacity wanes. The interviews and annual pledges illustrate a committed and knowledgeable conservation community whose progress is limited by structural challenges. The findings highlight the importance of ongoing leadership, communication, and recognition, underscoring that conservation progress depends not only on technical approaches but also on sustained social connection, motivation, and collaboration.

Performance of the Action Plan

Implementation of the Action Plan has been decentralized over the last five years due to a lack of dedicated funding and coordination. During interviews, stakeholders noted that enthusiasm has shifted, initial champions have changed roles or positions, and some individuals and organizations feel disconnected from a wider conservation partnership. Despite these barriers, stakeholders emphasized that voluntary conservation remains important and this analysis demonstrates that on-the-ground conservation generally remains strong. Some brief examples from each sector include:

Agriculture sector: The Illinois Farm Bureau's seed distribution, small grant program, and educational resources reach producers throughout the state.

Rights-of-way sector: Illinois Department of Transportation (IDOT) and several energy companies sustain long-term monarch conservation commitments through programs like the Monarch CCAA.

Urban sector: Key community engagement and on-the-ground conservation projects are promoted through organizations like the Brookfield Zoo, DuPage Monarch Project, and Route 66 Monarch Flyway Committee.

Natural lands sector: Conservation organizations continue to provide vital outreach, advocacy, and managed natural area habitats for monarch butterflies and other wildlife.

Table 1 below summarizes the Action Plan goals, objectives, and corresponding progress as of January 2026. A more detailed summary is provided in Appendix B. The progress status is based on the number of tasks *in progress* based on the actions defined for each objective and strategy in the original Action Plan. Please note that in progress does not imply that those actions are completed.

Table 1. Illinois Monarch Action Plan: Goals vs. Outcomes

Objective	Strategy	Status
Goal 1: Create an active collaborative of diverse stakeholders to increase cooperation in monarch conservation and help ensure the successful migration of monarchs through Illinois		
Objective A: Engage key stakeholders to coordinate the implementation of the Illinois Monarch Action Plan	Strategy 1: Host regular statewide summits to increase cross-sector engagement and coordinate implementation of the Illinois Monarch Action Plan	1 of 3 actions in progress
	Strategy 2: Foster active participation among public and private stakeholders and across the state to increase awareness of the Illinois Monarch Action Plan	3 of 4 actions in progress
Objective B: Distinguish IMP as the coordinated statewide effort for monarch butterfly conservation in Illinois and provide essential support for collaborative activities	Strategy 1: Develop a recognizable IMP brand and consistent messaging about IMP, the Illinois Monarch Action Plan, and monarch conservation in Illinois	3 of 6 actions in progress
	Strategy 2: Support coordination among IMP leaders and with local, state, and regional partners	1 of 7 actions in progress
	Strategy 3: Identify and apply for collaborative grants or other funding to support implementation of the Illinois Monarch Action Plan	1 of 4 actions in progress
Goal 2: Use the best available science on monarch butterflies and their habitat to inform conservation strategies		
Objective A: Track emerging issues and needs related to monarch butterflies and their habitat, and identify mechanisms to address those needs	Strategy 1: Engage conservation experts to identify and address emerging issues and needs related to monarch butterflies and their habitat	0 of 4 actions in progress
	Strategy 2: Periodically review and evaluate conservation strategies and actions to align with best available science	0 of 1 actions in progress
Objective B: Encourage adoption of conservation strategies and actions based on best available science	Strategy 1: Apply the best available science to determine best management practices (BMPs) and guidelines for habitat implementers and other practitioners	1 of 3 actions in progress

Objective	Strategy	Status
Goal 3: Conduct education and outreach to align statewide activities, inspire Illinoisans to engage in monarch conservation, and deliver the technical resources necessary to implement the Illinois Monarch Action Plan		
Objective A: Reach the general public through targeted education and outreach activities	Strategy 1: Provide general education about monarch conservation, with a focus on why it is important to take action	1 of 5 actions in progress
	Strategy 2: Create a buzz about monarch conservation across Illinois	3 of 6 actions in progress
Objective B: Encourage leaders and decision-makers to invest in monarch conservation	Strategy 1: Develop and disseminate outreach materials and resources to illustrate the ecological, economic, and cultural value of monarch habitat	1 of 2 actions in progress
	Strategy 2: Encourage individuals and organizations to implement conservation actions by recognizing their achievements	2 of 5 actions in progress
Objective C: Provide training, curriculum, and technical assistance to habitat implementers and other practitioners	Strategy 1: Create curriculum and conduct training events for habitat implementers and other practitioners to encourage adoption of habitat best management practices (BMPs) and adaptive management	0 of 3 actions in progress
	Strategy 2: Deliver technical assistance to support habitat implementers and other practitioners to more efficiently and effectively restore and enhance new and existing habitat for monarchs	2 of 9 actions in progress
Goal 4: Support populations of monarch butterflies and other pollinator species by preventing loss of existing habitat and by adding 150 million stems of milkweed embedded in appropriate nectar sources onto the landscape by 2038		
Objective A: Identify existing habitat on the ground and minimize habitat loss by addressing threats, including conversion to other land use types and other forms of habitat degradation	Strategy 1: Identify and prioritize lands with existing habitat that have the highest risk for conversion or degradation and develop rapid response plans to address potential habitat loss	1 of 8 actions in progress
	Strategy 2: Avoid accidental conversion of habitat to other land uses by designating or indicating existing habitat	5 of 10 actions in progress
	Strategy 3: Reduce the impacts of habitat degradation from land management practices and chemical use	2 of 18 actions in progress

Objective	Strategy	Status
Objective B: Enhance existing habitat through the use of best management practices to increase the density and diversity of beneficial plant species	Strategy 1: Identify and prioritize lands for enhanced habitat management, taking into consideration both conservation value and practical implementation	2 of 6 actions in progress
	Strategy 2: Improve the management of invasive species that threaten the quality of existing habitat	4 of 20 actions in progress
	Strategy 3: Adopt best management practices (BMP), such as interseeding with native seeds, prescribed burning, and conservation mowing	7 of 17 actions in progress
Objective C: Create or restore new habitat on favorable lands across different land types using best management practices	Strategy 1: Identify and prioritize lands for new habitat restoration, taking into consideration both conservation value and practical implementation	1 of 7 actions in progress
	Strategy 2: Identify potential public and private sector partners and assist them with implementing targeted programs to create or restore new habitat	10 of 23 actions in progress
Objective D: Build capacity for habitat restoration and enhancement across the agriculture, rights-of-way, urban, and natural lands sectors	Strategy 1: Increase the availability of native seed and plant resources necessary to meet demand, with special emphasis on the availability of regionally appropriate milkweed species	1 of 11 actions in progress
	Strategy 2: Develop strategic partnerships to advance habitat conservation on the ground	8 of 24 actions in progress
	Strategy 3: Advocate for programs, policies, funding, and other resources that promote habitat conservation on the ground	8 of 21 actions in progress
	Strategy 4: Promote the Route 66 Monarch Corridor as a showcase initiative to incentivize habitat restoration and enhancement across a variety of landscapes from Chicago to St. Louis	1 of 13 actions in progress
Goal 5: Standardize data collection and monitoring for monarch butterfly habitat		
Objective A: Identify existing data and data gaps to quantify baseline and potential monarch butterfly habitat	Strategy 1: Convene experts from each sector to evaluate and analyze existing data available to quantify 2014 baseline habitat quality and quantity, as well as potential habitat	1 of 2 actions in progress
	Strategy 2: Quantify impacts of conversion of habitat to other land uses and develop mechanisms to track conversions	0 of 3 actions in progress

Objective	Strategy	Status
Objective B: Develop and implement a statewide monitoring plan to evaluate and track implementation of the Illinois Monarch Action Plan	Strategy 1: Identify common tracking mechanisms and reporting platforms for documenting progress on habitat goals and other action items identified in the Illinois Monarch Action Plan	2 of 4 actions in progress
	Strategy 2: Support all stakeholders in monitoring trends in monarch habitat quality and the impacts of various threats on public and private lands across the state	1 of 3 actions in progress

Of the 252 actions counted in the original Action Plan, 73 actions were identified as being started or in progress. This represents approximately 29% of all actions having made some progress. No objectives are considered as being fully addressed. The analysis found some individual strategies have made significant progress, but every strategy has some elements that were not implemented. Many of the areas not implemented were primarily due to a lack of state-level direction or coordination.

In conjunction with the progress analysis conducted, the UIC research team also evaluated trends and insights gained via the progress evaluation along with the modeling data analysis and stakeholder actions noted previously. Together, these resources help the Illinois Monarch Project stakeholders, and other landscape conservation initiatives, understand the challenges and opportunities with such large-scale conservation collaboration.

Challenges to Conservation

The habitat modeling analysis and stakeholder interviews identified several barriers and challenges to long-term engagement in monarch conservation and the IMP.

Gaps in Statewide Coordination

A persistent challenge noted in several interviews was gaps in statewide coordination for IMP. Without a centralized coordination body or tracking system, there was limited ability for stakeholders to accurately identify or assess how and where monarch habitat conservation was being conducted throughout the state. Such gaps appear across sectors and datasets, creating a logistical barrier to not only understanding and communicating conservation contributions and progress but also leveraging the work of others to increase impact and efficiency. A number of actions identified within the Action Plan rely on someone in a coordination role to convene, motivate, and track progress on actions. In the absence of a dedicated coordinator role, individual actions will require an individual or organization to take ownership, collaborate with partners, and achieve identified actions.

These coordination gaps also were apparent in the UIC research team's difficulty aligning datasets across multiple programs, such as Conservation Reserve Program (CRP), Critical Trends Assessment Program (CTAP), the Monarch Candidate Conservation Agreement with Assurances (CCAA), protected lands, and urban conservation initiatives. Each program collects different data or there were inconsistencies in how data are collected. Such differences between datasets required repeated stakeholder outreach, clarifications, assumptions, and in some cases, exclusion of certain data in the modeling analysis, further highlighting the need for unified data governance for future landscape-scale conservation efforts.

Similarly, participation in small conservation programs or individual actions remain largely unknown due to a lack of centralized coordination and reporting. Data from

voluntary programs such as Monarch Waystations, the Mayor's Monarch Pledge (MMP), the IMP annual pledge, and other initiatives can be extremely limited or inconsistent, creating uncertainty in the true extent of conservation work being done. The lack of a centralized database or reporting structure for habitat outcomes risks underrepresenting important local conservation efforts. Strengthening coordination, creating simplified data collection mechanisms, and maintaining shared data standards, are important for easier quantification of conservation outcomes.

Maintaining Momentum

Sustaining the momentum built by the IMP and Action Plan in the late 2010s has been challenging as stakeholder interest, capacity, and external conditions (i.e., funding, policy, coordination support, etc.) have shifted. Several stakeholders noted that enthusiasm when the Action Plan was finalized in 2020 has moderated over time, evolving into broader pollinator and native landscape conservation work. While this transition reflects a natural adaptation of conservation goals, it also makes it more difficult to mobilize partners around unified monarch-specific goals.

In addition, the absence of a central coordination body, active state agency involvement or communications, and clear reporting and tracking mechanisms were also cited as contributing to a loss of momentum. Without this structured coordination, direction, or shared communication infrastructure in place, individual efforts continued work (or dwindled) in isolation, information-sharing and collaboration occurred less frequently, and individuals and organizations were less aware of their collective impact.

Where momentum has been maintained, it has been the product of a few key factors. On an individual level, personal passion and dedication drives many individuals to continue this work out of self-motivation. At an organizational level, having a governance structure that encourages and maintains motivation through a permit, funding, formal agreement, or other formal commitment has been essential to sustaining momentum and interest in conservation.

Reliance on Several Large Programs for Conservation Gains

The reliance on a few large conservation programs that yield statewide habitat gains is a benefit, but also a challenge. Major initiatives such as the CRP and the Monarch CCAA play a large role in contributing measurable habitat and milkweed stem increases. While commendable, depending solely on these large programs creates vulnerability within the statewide conservation effort. Agricultural sector habitat contributions to milkweed stems were primarily driven by the significant increase in acres enrolled in CP42. Similarly, rights-of-way habitat gains were only documented as a result of the Monarch CCAA program.

Programs like CRP, are susceptible to policy shifts, which can pose long-term conservation risks. Enrollment in CRP has declined over time, reducing the acreage of habitat available, even as targeted practices like CP42 have expanded over the period analyzed for this report. This increase also considered the offsetting effects of milkweed stem decreases resulting from the overall decline in CRP enrollment. Some of this decline was attributed by stakeholders to the lack of an approved, updated Farm Bill by Congress.

Similarly, while the Monarch CCAA provides data and conservation outcomes on adopted acres managed by energy companies and IDOT, the program covers only a fraction of the energy and transportation lands where conservation actions could take place. While many Monarch CCAA partner companies and agencies have a long-term interests in monarch conservation, their ability to fund and maintain their same levels of conservation commitments

may be subject to other business and operational pressures. The concentration on a handful of large programs masks substantial opportunities in other sectors or with smaller-scale initiatives. Reliance on a limited number of large programs poses concerns for long-term resilience and landscape change. It highlights the need for expanding tracking and reporting to capture other successful programs and outcomes across a broader cross-section of the state.

Insights for Future Conservation

Considering the findings of the habitat modeling analysis and stakeholder interviews, the UIC research team identified the following insights for future conservation efforts.

Clarity from Agencies on the Regulatory Context

As noted under the Regulatory Status section, the potential federal listing of the monarch butterfly as a Threatened species under the ESA or ILESPA could trigger a range of regulatory considerations across major land-use sectors in Illinois. Whether federal or state listed, regulatory protections for monarch butterfly conservation if or when enacted may have implications for the priority sectors adopting conservation practices under the Action Plan. Listing of the monarch butterfly could introduce regulatory considerations across agricultural, urban, energy, transportation, and conservation sectors in Illinois. The addition of regulatory restrictions on certain land management actions may inhibit conservation commitments.

Despite the potential for wide-reaching regulations resulting from federal and state listing of the monarch butterfly, interviews revealed that stakeholder groups widely varied in their understanding and concern about forthcoming regulations. Many interviewees were unsure whether listing was imminent and what (if the monarch was listed) would change. Some felt that listing would make conservation "easier to implement," while others thought it would have a cooling effect and preferred to see conservation efforts remain voluntary. Still others assumed it would not affect private landowners directly and that listing would essentially be a "non-issue." This range of viewpoints illustrates the uncertainty about what activities might be regulated for take, what those regulations mean for common land use practices, and what "threatened" vs. "endangered" listing statuses could mean in practice.

Some stakeholders reported "no general awareness" among their audiences about the monarch listing possibility, while others noted

that some already assume monarchs are endangered. This further highlights the potential for confusion and uneven buy-in as well as mixed messages about what would be *required* versus *encouraged* under a listing scenario. As a listing of the monarch butterfly becomes more imminent, it will be increasingly important for USFWS, IDNR, and other conservation agencies to have clear messaging related to a listing status and its associated regulations. Moreover, agencies may need to explore ways of encouraging continued engagement in Illinois-based conservation and existing voluntary initiatives to prevent a waning of conservation support amidst shifting federal and state regulations.

Recognizing the Role of Passion and Connection in Sustaining Engagement

The habitat modeling analysis and stakeholder interviews highlighted the importance of information sharing and hands-on experience in maximizing and sustaining engagement in conservation. Whether it is raising caterpillars in a classroom or managing vegetation on roadsides, passionate individuals working directly with monarchs or in their habitats help foster lasting connections to conservation contributing to the Action Plan's objectives. Recognizing and cultivating the connections people have with monarch butterflies, the land, and each other is an important consideration for future conservation efforts. As noted above, some interviewees pointed to the absence of IMP statewide coordination in the last several years directly leading to a disconnection between individuals and organizations and an overall loss of momentum.

An important part of sustaining passion is recognizing individual contributions, both formally (through awards, prizes, or other official acknowledgements) and informally (through personal communications or otherwise). Several interviewees noted the lack of recognition or communications contributing to the loss of momentum as well. Creating opportunities to highlight individual contributions and successful outcomes is crucial for long-term conservation engagement.

When conservation projects or programs depend on a single or few passionate champions to survive, they are susceptible to leadership or participant burnout, or may flounder when personnel leave or change positions. For larger organizations especially, building awareness and buy-in of pollinator best practices, educating on why practices matter, and continued cross-training are important aspects of sustaining conservation engagement as well.

Importance of Tracking Conservation Outcomes

Without tracking, conservation efforts lose visibility, credibility, and impact. Several interviewees noted information gaps, missed opportunities, or frustrations caused by the lack of statewide tracking and reporting. This is particularly true for smaller community-based conservation efforts. Some noted that they would have been able to collect better data on conservation outcomes, including acreage and milkweed occurrence, if there had been a mechanism to report or aggregate their results.

This analysis found that tracking is central to learning, improving practices, and identifying which actions produce measurable conservation outcomes. Scientists and land managers stressed the need for standardized monitoring and tracking to understand and communicate how much milkweed is present, where habitats are located, whether monarchs actually use those habitats, and how management actions (mowing, herbicides, or plantings) affect habitat over time.

Conclusion

This study was intended as the first comprehensive, statewide assessment of Illinois' progress toward the conservation goals outlined in the Action Plan. By revisiting the original modeling framework, integrating new datasets, and exploring insights from a decade of voluntary conservation, this report sought to answer: *How far has Illinois come in restoring and protecting monarch habitat, and what lessons can guide the next decade of conservation?*

The findings of this evaluation point to meaningful and measurable progress. The land use and conservation engagement analysis indicates that Illinois added an estimated 108 million milkweed stems between 2014 and 2024, placing the state more than two-thirds towards its goal of 150 million milkweed stems by 2038. Rights-of-way, particularly transportation corridors, emerged as the single largest contributor of new stems, while the CRP CP42 practice and improvements within natural lands also produced substantial gains. Urban areas, though smaller in spatial extent, demonstrate the cumulative power of distributed community-scale action. Uncertainties in sector-specific datasets, gaps in statewide coordination, and the absence of consistent tracking and reporting do limit the precision of statewide estimates. This engagement reflects the diversity and strength of Illinois' conservation community. The evaluation also underscores the complexity of collaborative landscape-scale conservation, and its mix of scientific, administrative, and social considerations.

Illinois' progress to date demonstrates that measurable landscape change is possible when thousands of partners from utilities and transportation agencies to farmers, municipalities, conservation groups, and home gardeners work in concert toward a shared conservation goal. Illinois now stands at a pivotal moment. The gains achieved so far affirm what is possible when science, community commitment, and strategic partnerships align. The path forward will demand adaptability, collaboration, and a sustained belief that voluntary conservation can shape the future of monarch butterflies and the ecosystems they represent. By strengthening shared infrastructure for tracking, communications, and decision-making, Illinois can continue transforming data into action that stewards lasting, resilient habitat across the state.

Appendix A. Land Use and Conservation Adoption Analysis

IMP 10-Year Progress on Milkweed Abundance in Illinois Analysis Methods

Overview of Analysis Approach

The IMP goal of adding 150 million stems of milkweed in Illinois was derived from an estimate of the proportion of stems that could be contributed by Illinois based on a Midwest-scale milkweed distribution model developed by Jason Rohweder and Wayne Thogmartin at the U.S. Geological Survey (USGS) (Rohweder J and WE Thogmartin 2016). This model uses a GIS-based, land cover analysis alongside estimates of milkweed abundance across large geographic regions. This generates milkweed stem estimates using milkweed stem densities associated with land-cover classifications within the region of interest. For our purposes, this included the entire state of Illinois. The original "sensitive" model relies on the following datasets as input:

- National Land Cover Database (NLCD)
- Cropland Data Layer (CDL)
- U.S. Protected Areas (PADUS)
- Roadways (US Census TIGER layers)
- Railways (US Census TIGER layers)
- National Commodity Crop Productivity Index for Corn and Soy Soil Productivity (USDA-NRCS)
- Transmission Lines (National Geospatial Intelligence Agency)*
- Conservation Reserve Program (USDA/FSA)*

*Due to the sensitivity of these data layers, Rohweder and Thogmartin also provide a non-sensitive version of this model that omits these data layers. Source: Monarch Conservation Planning Tools [User Manual] (Rohweder J and WE Thogmartin 2016)

Milkweed stem densities from (WE Thogmartin 2017) were applied to each land cover class as a default. These default values were then replaced by updated and field verified stem densities where data was available. See Model Refinements for descriptions of these data.

For the purpose of this progress report and estimating the number of stems that have been added to the landscape from 2014 to 2024, it was first necessary to establish an approximate milkweed baseline for the state of Illinois. The UIC research team modified the original version of the modeling script from Rohweder and Thogmartin (2016) for use with 2014 spatial datasets clipped to the Illinois state boundary. For more accurate year-to-year comparisons, the research team converted the model into Python script and removed the Cropland Data Layer (CDL) to avoid calculation errors. Comparisons between CDL data layers over a 10-year period resulted in calculation errors due to changes in the CDL detection and classification methods. This exercise was repeated using 2024 versions of those datasets to obtain the preliminary estimated change in milkweed stems from 2014 to 2024 based on national land cover datasets. This preliminary estimated change was then enhanced with several additional datasets that were not part of the original Rohweder and Thogmartin model. These additional datasets captured conservation engagement and milkweed stem density data at regional, state, and local scales. These sources were diverse, and ranged from longitudinal studies on flowering plants to localized milkweed conservation programs. Figure 2 illustrates the conceptual model used to first establish a land cover-based estimated change, followed by the refinement with model enhancement datasets.

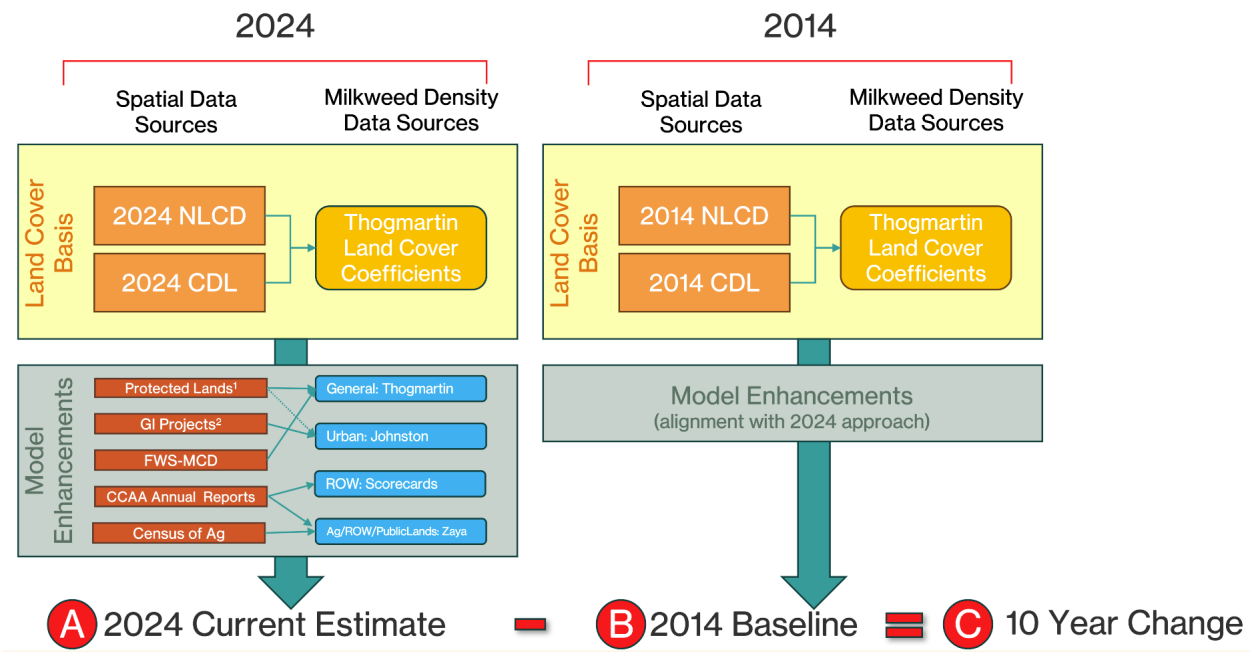


Figure A-1. Conceptual Model Used in the 10-Year Progress Analysis of Milkweed Abundance in Illinois

Initial Land Cover Analysis

Land covers for the state of Illinois were evaluated for the years 2014 and 2024 using the same non-sensitive Midwest data model[1] developed by Rohweder and Thogmartin (2016). This model is available as an ArcToolbox script for download by the USGS as part of their Monarch Conservation Planning Tools, but was obtained by UIC through coordination with the developers (J. Rohweder personal communication Sept 16, 2025). The 2014 and 2024 land covers rely on several data inputs, including: the National Land Cover Database (NLCD), the Cropland Data Layer (CDL), Protected Areas of the US (PADUS), U.S. Electric Power Transmission Lines (9/30/2024) utilizing U.S. government data (accessed via Esri Living Atlas[2]) , US Census TIGER rail and road features, and Natural Resources Conservation Service (NRCS) soil productivity for corn and soy. For more details on this model and how it was developed, see "Appendix 1. Seamless Milkweed Habitat Raster Development" in the Monarch Conservation Planning Tools User Manual (Rohweder J and WE Thogmartin 2016).

Model Refinements

After establishing a 2014 and 2024 land covers, these data were refined through use of several additional datasets. This refinement included the review and incorporation of numerous datasets to inform this analysis. These are summarized in Table A-1, along with their application within the analysis.

[1] The non-sensitive version of the model was used due to restrictions on access to Conservation Reserve Program (CRP) spatial data layers.
[2] ArcGIS Living Atlas of the World (https://livingatlas.arcgis.com/en/browse/?q=%22U.S.%20Electric%20Power%20Transmission%20Lines)

Table A-1. Datasets considered in model refinements.

Data	Description	Source	Application
Monarch Conservation Planning Tools	These tools are for estimating the number of milkweed stems based milkweed stem densities by NLCD landcover class.	(Rohweder J and WE Thogmartin 2016)	Use this tool or coefficients from this tool with more recent NLCD data to estimate the change in the number of milkweed stems in Illinois.
Restoring monarch butterfly habitat in the Midwestern US: all hands on deck'	Overview of original planning estimates of milkweed stem densities used in original spatial modeling that informed the Action Plan and Illinois stem goal.	(WE Thogmartin 2017)	Methodological background for Thogmartin's milkweed stem density estimation tool.
Supplemental data from Thogmartin et al. (2017)	Model scenario outputs from Thogmartin's analysis by land cover type.	(WE Thogmartin 2017)	Confirmation of original adoption rates and stem densities assumed by land cover class.
Estimating Milkweed Abundance in Metropolitan Areas Under Existing and User-Defined Scenarios	Estimated milkweed abundance based on field studies of milkweed in the Chicago area.	(Johnston M.K. 2019)	Application of adoption rates and updated stem densities for urban area conservation actions.
IMP Data source appendix	Data source appendix from original IMP modeling.	(Illinois Monarch Project 2020)	Compare to analogous datasets from more recent years.
I-View	Database of protected lands in Illinois including public and private lands. Other accessible data include Conservation Opportunity Areas, biologically significant streams, Illinois Natural Areas Inventory sites, trails, and federal and state electoral districts.	David Holman personal communication, 2025	Well-maintained source for protected lands data for the state.
National Land Cover Database	Conterminous U.S. land cover at a 30-meter spatial resolution produced through a multi-agency consortium.	(MLRC 2026)	Land cover dataset that provides the basis for the analysis and application of stem densities.
National Cropland Data Layer	10m resolution raster layer of agricultural land cover.	(USDA 2026a)	Refined land cover dataset for confirming agricultural uses.
Conservation Practices Installed on CRP	Number of acres by conservation practice for each County.	(USDA 2026b)	Analysis of CRP enrollment trend in Illinois.

Data	Description	Source	Application
Monarch Conservation Database	Data gathered by the Monarch Conservation Database regarding monarch conservation actions.	USFWS, Steve Choy personal communication 2025	Supplementary data regarding monarch conservation actions in Illinois.
Long-Term Trends in Midwestern Milkweed Abundances and Their Relevance to Monarch Butterfly Declines	Study looking at long-term plant survey from Illinois to evaluate trends between Monarch decline and milkweed abundance.	David N. Zaya , Ian S. Pearse , Greg Spyreas (Zaya 2017)	Historic data on milkweed density and methods for surveying and estimating milkweed density.
Monarch Land Cover Model Documentation	Model provided by Jason Rohweder, used in generation of Monarch butterfly relevant land cover data set.	Jason Rohweder personal communication 2025	Verification of model use, analysis processes, and assumptions within the model.
CCAA Reporting Data within Illinois	Annual reporting data of conservation (adopted) acres and milkweed stem densities from monitoring results.	UIC Sustainable Landscapes Program	Used in refinement of rights-of-way sector milkweed stem densities.
US Census TIGER - Roads and Railways	Complete centerlines for US roads and railways.	(USCB 2026)	Used in refinement of rights-of-way sector acreage modeling.
US Protected Areas Database (PADUS)	National inventory of protected areas for biodiversity, natural, recreational, and cultural purposes.	(USGS 2024)	Used in analysis of natural lands.
NASS CDL summary calculations	Data summarized by David Zaya from the National Cropland Data Layers from 1999-2015. Summary of how many pixels were in each land cover category.	(USDA 2026a), David Zaya personal communication 2025	Use this tool or coefficients from this tool with more recent NLCD data to estimate the change in the number of MW stems in Illinois.

The UIC research team refined milkweed density estimates where more current, geographically specific, or in-field data were available. Datasets from field monitoring programs were provided by the Illinois Natural History Survey (INHS), which has conducted a long-term Critical Trends Assessment Program (CTAP) monitoring since 2004 to monitor the biological condition of Illinois' forests, wetlands, and grasslands (CTAP 2023). The program includes records of milkweed and other vegetation using a percent cover visual estimate by plant species. Thus, the CTAP program does not measure the plant stem density by land cover class, which is the basis for the Rohweder and Thogmartin model. In order to incorporate CTAP data into the model, UIC used the factored increase (or decrease) in land cover change multiplied by the original stem density estimate to scale up (or down) the estimated stem density in 2024 across appropriate land cover classes monitored by the CTAP program. These land covers include grasslands, pastures, and herbaceous wetlands.

Non-spatial CRP data were added to the model by tabulating U.S. Agricultural Census datasets comparing 2014 and 2024. CRP includes a number of habitat-specific programs, some of which directly benefit pollinators such as Pollinator Habitat (CP42), Prairies Strips (CP43), and various wetland programs. Field studies conducted by INHS included program-specific vegetative percent covers and milkweed stem density estimates for CP42. Using this dataset, the sum total of CP42 land in 2014 and 2024 was analyzed independently of all other CRP lands, as described below.

Developed urban areas (as classified by the NLCD) in the Rohweder and Thogmartin model are assumed to be mostly devoid of milkweed, presumably because research at the time lacked sufficient data. However, research conducted since this model was developed (Johnston M.K. 2019) identified milkweed stem densities for several urban land cover classes. The research team conducted a geospatial conversion to apply these updated densities to urban areas, as described below.

Adoption rates were applied to each land cover class based on the expected level of participation in, and implementation of, conservation practices. Rates from the original Thogmartin analysis were used to represent the anticipated degree of conservation uptake within each class. These assumptions were informed by available enhancement data as well as qualitative inputs, including stakeholder feedback.

Calculating the Effects of Milkweed Densities and Conservation Adoption

The UIC research team used a hybrid geospatial-tabular analysis to calculate the final results. Using the geospatial models developed using the Rohweder and Thogmartin approach described above, total acreages for 2014 and 2024 were exported to a master spreadsheet in Microsoft Excel for tabulation. For agricultural areas, milkweed densities used in the analysis for both 2014 and 2024 followed the estimates used by Thogmartin et al (2017). The most significant agricultural program benefiting pollinators is the CRP. Geospatial data for this program is reserved for U.S. Department of Agriculture research purposes, thus the UIC research team relied on U.S. Agricultural Census tabular data to determine acreages of enrollment by year. To prevent double counting (i.e., acres in both tabular CRP data and land cover analyzed), an equivalent acreage was subtracted from both 2014 and 2024 acreage totals for areas identified as pasture/hay in the NLCD, the closest equivalent land cover class. For acres identified as CP42, a separate estimated milkweed density (636 stems/acre) was used based on CTAP field-collected data. All other CRP acreages used default values from Thogmartin et al. (2017) for CRP wet and CRP dry milkweed densities. The same densities were used for both 2014 and 2024.

Urban land cover classes from Johnston et al. (2019) were incorporated into the analysis because they had field-sampled milkweed densities associated with them. These classes differed from the urban classes in Thogmartin et al. (2017). Thus, the UIC research team cross-walked the two data models. This was done by first combining all urban[3] land cover classes in the Rohweder and Thogmartin model into a single “urban” class that was overlaid on Johnston et al. (2019) data for the seven-county Chicagoland region. This overlay was then used to determine the proportion of each new land cover class[4] that comprised the total area classified as “urban” in the Rohweder and Thogmartin model. This was done

[3] These included: 21 - Developed Open Space (NCLD) Linear, 22 - Developed Low Intensity (NCLD) WITHIN URBAN, 23 - Developed Med Intensity (NCLD), 24 - Developed High Intensity (NCLD), 25 - Developed Open Space (NCLD) Core, and 26 - Developed Low Intensity (NCLD) EXURBAN.

[4] These included: Agricultural, Residential-single, Residential-common space and multi-family, Corporate and medical, Community and cultural, Industrial – small, Minor roads, Major rights-of-way and landfill, Restricted use rights-of-way, and Vacant lots.

using the "Tabulate Area" tool in ArcGIS Pro (version 3.4.3). These proportions were then used to estimate the equivalent land acreage of each new land cover class for urban areas across the entire state.

The estimated adoption of urban conservation programs was incorporated into tabular calculations based on four conservation programs that engage urban property owners: the IMP annual pledge, Monarch Watch Waystations, Pollinator Partnership Million Pollinator Garden Challenge, and the National Wildlife Federation Mayors Monarch Pledge. For datasets represented by point locations, the UIC research team assumed an average lot size of 0.1 acres for urban areas, 0.15 acres in suburban areas, and 0.2 acres in rural areas. These values were then multiplied by exemplary milkweed densities for residential single family homes (~330 stems/acre) from Johnston et al. (2019). One exception was the Integrated Monarch Monitoring Program (IMMP), where sites were based on the larger plot sizes (i.e., mean plot sizes are 10,277 m^2). In these instances, a more conservative exemplary value of "Residential-common space and multi-family" was applied (~180 stems/acre). The UIC research team incorporated additional point datasets from Monarch Watch Waystations, the Pollinator Partnership Million Pollinator Garden Challenge, and Chicago Living Corridors[5]. Since plots may be registered in more than one program, overlapping datasets (within a 500 ft radius) were treated as duplicates and counted only once. For municipalities that signed onto the Mayor's Monarch Pledge, the UIC team assumed there was an additional 2% adoption rate at exemplary milkweed densities from Johnston et al. (2019) was applied across all land cover classes within that municipality. In other words, the team assumed that an additional 2% of households within that municipality adopted conservation actions.

Calculations for natural lands were based on the land cover model and followed Thogmartin et al. (2017) milkweed densities for 2014, except for herbaceous wetlands. Rohweder and Thogmartin estimated a zero stem density in their 2016 model for herbaceous wetlands. Field experience with the CTAP data was used to confirm conversions and data applicability to land covers selected. David Zaya, an Illinois Natural History Survey (INHS) Plant Ecologist, noted that the original zero stem densities used are likely artificially low for Illinois due to a lack of available data at the time (David Zaya personal communication on October 7, 2025).[SD1.1] To estimate a new baseline, the proportion of milkweed cover in grasslands compared with wetlands was multiplied by the 2014 milkweed density in grasslands. Updated milkweed density values were used for 2024 estimates for grasslands, pasture, and herbaceous wetlands based on CTAP field data. For more information, see "Model Enhancements," above.

Agriculture

The Conservation Reserve Program (CRP) is a major voluntary program administered by the Farm Service Agency (FSA) designed to encourage agricultural landowners to implement conservation measures on their property, preventing erosion and providing other environmental benefits including pollinator habitat. The number of acres enrolled in CRP within Illinois decreased by more than 130,000 acres from 2014 to 2024 (Figure A-2). Despite this overall loss, Conservation Practice 42 (CP42) increased by more than 115,000 acres during the same period. While many conservation practices in CRP are contributors to pollinator habitat, this conservation practice is the most targeted towards adding suitable habitat for monarch butterflies and other pollinators (Table A-2).

[5] Chicago Living Corridors consolidates several pollinator programs, including: 1) The Conservation Foundation, 2) West Cook Wild Ones, 3) Openlands, 4) Citizens for Conservation, 5) DuPage Monarch Project - Monarch Watch, 6) Forest Preserves of Cook County/University of Illinois Extension, 7) Red Stem Native Landscapes, Inc., 8) Wildflower Preservation and Propagation Committee, 9) The Land Conservancy of McHenry County, 10) Barrington Area Conservation Trust

Figure A-2. Total CRP Enrollment in Illinois by Year, 2014 - 2024

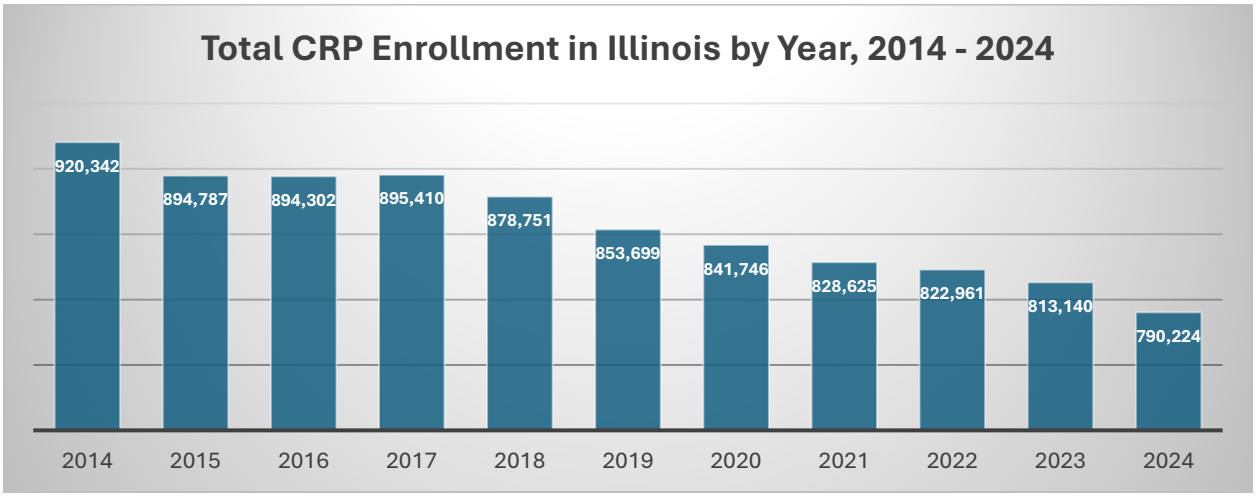


Table A-2. CRP Enrolled Acres, 2014 to 2024

Year	Total CRP (acres)	Total Included CRP (acres)	CP42 (Pollinator Habitat) Acres
2014	920,342	869,093	4,433
2024	790,224	768,829	120,274
Net Change	-130,118	-100,264	115,841

Rights-of-Way

Monarch CCAA

The Monarch Candidate Conservation Agreement with Assurances (CCAA) is a program that encourages voluntary conservation on lands supporting energy and transportation infrastructure. Under this agreement, companies and transportation agencies enroll lands where they receive federal Endangered Species Act permit coverage under the CCAA. To comply with the agreement, each partner must commit a percentage of their enrolled lands to be 'adopted acres' where conservation measures are implemented, tracked, and monitored. Since the program's inception in April 2020, seven partner organizations have enrolled monarch habitat as adopted acres in Illinois under the CCAA, including six energy utilities and the Illinois Department of Transportation (IDOT). In total, these organizations maintain 169,620 acres of monarch habitat and conduct annual monitoring of the habitat quality, including reporting milkweed stem counts. Annual monitoring under the CCAA allows us to accurately estimate the number of milkweed stems present on these acres.

Table A-3. Illinois CCAA Partners Adopted Acres and Milkweed Stem Counts, as of December 2024

Sector	Adopted acres in Illinois	Average milkweed stem density per acre	Total estimated milkweed stems added
Energy	137,510	231.7	31,858,317
Transportation	96,330	232	22,348,560
Net Change	233,840	-	54,206,877

Energy Sector CCAA Contributions

Habitat conservation by energy companies enrolled in the Monarch CCAA typically includes brush removal, targeted herbicide use, setting aside idle lands free from disturbance, and use of native seed mixes by enrolled partners. The CCAA energy sector partners in Illinois account for 137,510 acres of habitat contributing 31,858,317 stems.

The modeling analysis did not account for conservation measures implemented by other energy companies (solar facilities, rural electric cooperatives, other utilities, pipelines, etc.) outside of Monarch CCAA enrollment, although it is believed that some of these companies do implement conservation measures to support pollinators and other wildlife.

Roadside CCAA Contributions

IDOT implements conservation measures on a large portion of their highways, making them a significant contributor of milkweed stems across the state. Habitat conservation under IDOT's Monarch CCAA enrollment includes annually timed or rotational mowing, targeted herbicide use, setting aside idle lands free from disturbance, and use of native seed mixes. There is some uncertainty as to the total number of acres of IDOT rights-of-way managed for monarch habitat. At least 32,110 acres of IDOT managed lands have been verified annually via reporting provided for the Monarch CCAA. However, through personal communications with IDOT staff, the total acres of habitat on IDOT rights-of-way are believed to be much higher than reported annually in the Monarch CCAA, particularly through the implementation of conservation mowing practices, which either avoid peak time periods when monarchs are expected to be present and/or limit mowing to one-third of the width of the right-of-way. In 2020, IDOT reported to the Monarch Conservation Database (MCD) that conservation measures were implemented on more than 338,000 acres. To determine a current estimate for this analysis, the UIC team elected to multiply IDOT's CCAA annual adopted acres (32,110 acres) by three (once for each year of their Monarch CCAA enrollment). This estimate assumes that IDOT rotated their CCAA adopted acres year-to-year over the three years of their CCAA enrollment between 2021 and 2024. Although there may be some degree of overlap in their adopted acres from year-to-year, this approach still seems to provide a conservative estimate of the extent of conservation measures implemented on IDOT roadsides. IDOT staff and researchers continue to look for ways to improve their quantification and tracking methods to provide accurate conservation estimates.

The modeling analysis did not account for conservation measures implemented by the Illinois Tollway or local (township, county, or municipal) road authorities, although it is believed that some of these agencies do implement conservation measures to support pollinators and other wildlife.

Urban

There are multiple voluntary conservation efforts in Illinois with the goal of adding monarch habitat in urban areas, including the Mayors' Monarch Pledge (MMP) and the Monarch Watch Waystation programs. The MMP is a municipal-scale program administered by the National Wildlife Federation in which mayors (or other local government leaders) make commitments to conserving monarchs and their habitat. MMP actions items include communication and coordination, habitat conservation programs, demonstration gardens, and public policy changes. MMP regularly surveys officials in the program, gathering information including accomplished actions, estimated constituents reached, estimated habitat acres added, as well as multiple open-ended questions where participants describe where and

how habitat is being created in their municipality. Stakeholder interviews indicated that the popularity of municipal and individual pledge programs such as MMP and Conservation@Home has increased over the last decade, with the general public showing greater interest and understanding of how they can support pollinator conservation. Stakeholders noted that native pollinator-friendly plants are becoming more accessible at nurseries, and public sector leaders have shown an increased interest in creating pollinator gardens on public lands such as schoolyards.

The Monarch Waystation program administered by Monarch Watch encourages individuals and organizations to create and register pollinator gardens of at least 100 square feet in order to mitigate the effects of habitat loss and fragmentation in urban and suburban areas. This registry includes only basic information such as ownership and generalized location. In addition, Chicago Living Corridors (CLC) consolidates data from 10 different private landowner conservation programs and maps those registered sites in the Chicagoland area. Point data from the CLC map was similarly incorporated, assuming an average garden size of 0.1 acres.

Natural Lands

The Natural Lands Sector includes protected natural areas managed by state and federal agencies, forest preserves, conservation districts, land trusts, and other organizations. For the purposes of this analysis, “natural lands” is broadly defined; relying on the mix of public and private lands mapped as “protected” in the Protected Areas Database of the U.S. (PADUS). In contrast, Illinois’ regulatory definition of "natural area", found in 525 ILCS 30/3.10 is more narrowly defined to mean an area of land that *retains or has recovered to a substantial degree its original natural or primeval character, though it need not be completely undisturbed, or has floral, faunal, ecological, geological or archaeological features of scientific, educational, scenic or aesthetic interest*.

This sector is positioned to support long-term protection, ecological integrity, and restoration of native habitats. The sector’s conservation work builds on existing stewardship practices to enhance and expand high-quality habitat for pollinators. The natural lands sector focuses on Illinois’ protected natural areas, plus enhancing and expanding high-quality habitat for monarchs and other pollinators. Strategies in this sector are centered on preventing habitat loss, improving habitat quality of existing lands, restoring new habitat where possible, and building long-term capacity through partnerships and policies.

Analysis of the natural lands sector used a combination of reviewing PADUS data alongside state-maintained data (David Holman personal communication 2025). For ease of use in the model, PADUS data was relied on for acreages associated with grassland and pasture land cover types included in the analysis. Milkweed densities for the 2014 baseline relied on estimates of 3.09 stems per acre from Thogmartin et al. (2017) for all natural land classes except *herbaceous wetlands*, which Thogmartin estimated to have no contribution (zero density). To be conservative, this value was increased based on CTAP field research from 2014 to 2.11 stems per acre. For 2024, the UIC research team used the same Thogmartin densities from 2014, but added CTAP-factored increases calculated for each land cover class from changes in milkweed percent cover from 2014 to 2024. Discussions with INHS biologists affirmed that this increase in milkweed density was observed in CTAP datasets over this period as well. NLCD land cover from 2014 to 2024 documents over a 96,000 acre increase in PADUS protected pasture/hayfield and grassland cover. Of note, some grasslands are misclassified as pasture/hayfield within NLCD. In total, the model estimates an increase of over 3.8 million stems of milkweed. While smaller than most land use sectors, this increase does illustrate the value of conservation and protection actions taking place on these lands.

Conservation Data Excluded from Model

Survey responses from commitments made in the MMP did not include area of conserved land or milkweed stem counts by land use type. Many of the responses include very rough estimates of acres of habitat, and additional information provided was unquantifiable in the scope of this project. For the purposes of this analysis, the UIC research team wanted to account for conservation outcomes likely resulting from increased education and community engagement around monarch butterfly conservation. To represent this anticipated change, the UIC team assigned municipalities that pledged via the MMP a higher adoption rate in the model than non-MMP municipalities.

Additional data sources were considered but not included in the model due to being redundant to other sources, unavailable in the years for the period evaluated (i.e., 2014 and 2024), or containing unquantifiable data. The USDA Census of Agriculture was considered for its information on land use practices but was ultimately excluded due to a lack of existing literature on quantifying the effects of agricultural land use practices (e.g., cover crops and no till) on milkweed stem counts. Additionally, the USFWS Monarch Conservation Database was also considered but the data in this source was considered redundant to information already included in the model.

Data on threats to habitat or habitat degradation data such as pesticide use, roadside mortality and other stressors were also not included in the model due to the complexity and uncertainty of how these factors impact milkweed stem counts. Moreover, available pesticide use data available from USDA's National Agricultural Statistics Service Agricultural Chemical Use Program does not account for seed coatings which is the more routinely applied than spray applications. The UIC research team also considered that habitat stressors such as pesticide use and other impacts may already be accounted through stem densities, adoption rates, and land use changes in the model.

Results

Results from the hybrid geospatial-tabular analysis are shown in Table A-4. The agriculture sector represented the largest milkweed-contributing land area with over 22 million acres, and had the single largest gain due to the enormous increase in Pollinator Habitat (CP-42) acres, which went from approximately 4,400 acres in 2014, to over 120,000 acres in 2024. This program saw a significant increase in CP42 practice enrollment despite an overall decrease in CRP acres in total (Table A-4). Notably, much of this acreage increase occurred prior to 2020, with less enrollment since this early interest. This net gain in milkweed stems, combined with other CRP programs and agricultural margins, resulted in a net gain of 56.5 million additional milkweed stems.

The rights-of-way sector had the largest contribution in 2014, the second largest in 2024, and the second largest net increase—46.5 million additional milkweed stems. This is despite rights-of-way being the second smallest sector in total acreage (1.6 million acres). Within this total, estimates indicate that the transportation rights-of-way contributed 15.1 million additional stems and the utility rights-of-way contributed 31.4 million additional stems.

The natural lands sector includes grasslands, shrublands, herbaceous wetlands, and pastures, which were estimated to have contributed a more modest net increase of 3.8 million new milkweed stems. Lastly, urban areas added approximately 1.5 million new stems.

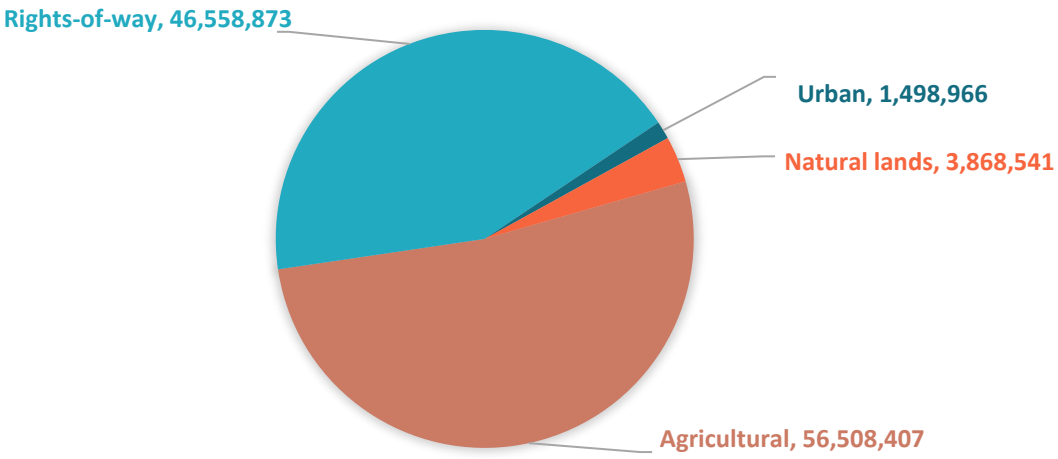
On a per milkweed-stem basis in 2014, model estimates were dominated by the rights-of-way sector, which accounted for over 80 million milkweed stems (49%), followed by the Agriculture/CRP sector at nearly 74 million stems (45%). These were followed by Natural lands at 6.2 million (4%), and Urban areas at 4.7 million (3%). As described above, there was significant growth overall, but the proportions by sector were similar in 2024 to those in 2014 with the exception of disproportionate growth in Agriculture/CRP due to the strong influence of the CP-42 program, which enabled this sector to outperform Rights-of-way areas, 130 million stems (48%) compared to nearly 127 million stems (46%). Natural lands increased to 10 million stems (3.7%), and Urban still trails with over 6 million stems (2.3%).

The overall influence of the CP-42 program and Monarch CCAA to add pollinator habitat suggests that these programs are critical to both maintaining and further expanding efforts to get more milkweed on the landscape. A big caveat to interpreting these findings is the lack of a baseline for urban areas needed to assess progress in this important sector. Urban areas not only generate important habitat connectivity in developed areas, but are critical for engaging stewards, educating the public, and drawing support to this important issue. Considering this, it is difficult to assess which sectors and programs offer the most value since simply producing milkweed stems may not be the only goal. Both ecological connectivity, public engagement, and sustained conservation are goals of the Action Plan. Table A-4. Estimated Total Stem Counts by Sector 2014 to 2024

Sector	2014 Acres	2014 Stems	2024 Acres	2024 Stems	Stems Added
Agriculture/CRP	22,159,640	73,806,600	21,971,200	130,315,007	56,508,407
Natural Lands	2,817,072	6,243,537	2,912,603	10,112,078	3,868,541
Urban Areas	3,502,508	4,715,531	3,656,527	6,214,497	1,498,966
Rights-of-Way	1,663,426	80,338,009	1,604,025	126,896,881	46,558,873
Non-Habitat	5,915,519	0	5,917,130	0	0
Totals	36,058,166	165,103,677	36,061,484	273,538,463	108,434,787

Tabular data (above) is summarized in the chart below (Figure A-3). Despite agricultural and rights-of-way experiencing a decline in acreage (Table A-4), these areas experienced sizable increases in milkweed stem counts due to conservation efforts. Agriculture accounted for 52% of all milkweed stems added from 2014 to 2024. Rights-of-way also accounted for a significant portion (42.9%) of milkweed stems added (Figure A-3). Natural lands and urban areas experienced more modest increases in stem counts. Natural lands accounted for 3.5% and urban areas accounted for 1.3% of stems added.

Figure A-3. Net milkweed stems added by land cover category



Stakeholder Perspectives and Trends

In addition to the habitat modeling analysis, the UIC research team also conducted stakeholder interviews with individuals and organizations that have engaged in monarch butterfly conservation in Illinois, including collaboration in the IMP, as well as summarized findings from the last five years of the IMP annual pledge.

Methods

Stakeholder Interviews

Stakeholder interviews were conducted to understand the perceived status of monarch butterfly and other pollinator conservation efforts in Illinois, plus obtain diverse perspectives on its engagement and effectiveness. Through these interviews, the UIC research team sought to establish trends in engagement and issues revolving around sustained implementation of conservation actions. Interviewees were selected through existing IMP networks and represented a cross-section of state and federal agencies, non-governmental organizations, industry associations, conservation groups, and individuals (Table A-5).

Table A-5. List of Stakeholder Organizations and Interviewees

Organization	Interviewee(s)
Brookfield Zoo	Andre Copeland, Natalie Lichtenbert
Citizens for Conservation, Environmental Defenders of McHenry County, Heartlands Conservancy, Prairie State Conservation Coalition	Abigail Derby Lewis, Cindy Skrukrud, Mary Vandevord, Cynthia Kanner
DuPage Monarch Project	Lorrie Morris
Illinois Department of Transportation	Scott Hall, Jack Schackmann

Organization	Interviewee(s)
Illinois Farm Bureau	Amelia Cheek, Bena Pegg
Illinois Natural History Survey	David Zaya
Natural Resources Conservation Service, Illinois Farm Service Agency	Jason Conner, Jamie Diebal
Route 66 Monarch Flyway Committee	Geoff Ladd, Susan Helm
Sierra Club	Terri Tracey, Linda Horn
U.S. Fish and Wildlife Service	Andrew DiAllesandro

Interviews were conducted via online meetings in December 2025, including both individual and small-group meetings. The UIC research team used a structured format to allow for consistency across interviews while providing space and flexibility for interviewees to provide information on issues they deemed relevant. Interview questions focused on:

- Trends observed in the last 5-10 years regarding the level of interest and/or action taken to conserve monarchs and their habitat among stakeholders in Illinois;
- Attitudes/level of concern observed around the upcoming state/federal listing status;
- Needs and/or challenges observed in advancing monarch conservation in the state; and
- Effectiveness of conservation strategies implemented across Illinois in the last 5-10 years.

Interview responses were recorded in notes and meeting transcripts. These data were then compiled into an Excel spreadsheet as well as analyzed using a language learning model (LLM, Microsoft Copilot) to identify responses and themes across interviews. All LLM-generated responses were verified manually against original interview responses to ensure data quality was retained. Responses were then analyzed for common themes, insights, shared experiences, sector-specific insights, and progress to fulfillment of the Action Plan.

Annual Pledge

The IMP pledge launched in 2020 as an opportunity for organizations and individuals to commit to actions that support monarch butterflies and pollinator conservation in Illinois. The pledge aims to both encourage conservation actions and provide a method of tracking engagement and on-the-ground impacts. In 2022, the IMP pledge transitioned to a recurring annual pledge period and added fields for respondents to report on past actions completed.

For this analysis, pledge data recorded via sign-ups from the IMP website[6] from 2020 through 2026 were reviewed to assess trends in participation and stated commitments. These responses were compiled and categorized based on variables such as organization type and action categories. The analysis covered both qualitative and quantitative data that was compiled into an Excel spreadsheet. Findings from the pledges were then compared with year-over-year changes, as well as alongside interview insights.

[6] https://illinoismonarchproject.org/

Results

Stakeholder Interviews

A prominent trend across the interviews was a shift from a focus solely on monarch butterfly to a more broadly encompassing pollinator-based conservation focus. While monarchs remain an important icon in pollinator conservation, many stakeholders emphasized the need to support diverse pollinator species. Several interviewees noted that interest and momentum around monarch conservation appeared to peak between 2018 and 2021, which was then followed by a gradual decline in urgency. This decline was not due to a lack of concern. Instead, interviewees expressed that competing priorities, limited capacity, and burnout among highly engaged workers and volunteers caused declines in involvement. For those individuals remaining active in IMP-related efforts, personal passion was cited as the primary motivator for continued involvement.

Most interviewees expressed low concern about the monarch's federal listing status as a driver of action. Many individuals act as though it is already listed, and that the change wouldn't influence their work. However, a consistent concern was the perceived loss of momentum within IMP itself, following the reduced coordination and communication efforts once the Action Plan was published. Some stakeholders felt that their efforts to meet as a group were being lost among others, and emphasized the need for stronger state-level leadership to connect efforts and maintain alignments across sectors. Collective responses to individual questions are summarized below.

How would you describe the current level of interest in monarch conservation compared to 5 years ago? 10 years ago?

Across organizations, respondents described a mixed but generally declining or stabilizing interest compared to earlier peaks. Interest had increased in the period preceding the development of the Action Plan. Many describe the period around the release of the Action Plan as a peak of interest, with momentum and widespread engagement. Despite respondents reporting declines or plateaus of interest in some sectors, others noted sustained or increasing localized interest – especially among urban and agricultural landowners.

In your opinion, are monarch conservation efforts growing, declining, not changing?

Despite views of a general stabilizing or reduction in interest, many respondents claimed that their monarch conservation efforts were growing. This was true among organizations across the agricultural, urban, and rights-of-way sectors. Several organizations with resource constraints noted their efforts are declining. Some agencies perceived efforts as stable, though not strongly increasing.

What are short-term and long-term needs seen in order to sustain or improve conservation efforts?

Across organizations, respondents emphasized that both short-term and long-term progress in monarch conservation depend on improving capacity, expanding education, strengthening collaboration, and securing sustained resources. Despite variation across sectors, responses revealed similar themes.
In the short term, many respondents highlighted the need for better training, clearer guidance, and improved coordination. For example, some organizations noted that field-level staff require more practical training on habitat management and pollinator-friendly practices, particularly where conservation is not the central mission. Similarly, several conservation groups stressed the need for accessible experts who can provide timely guidance, answer questions, and help keep interest and

momentum. Respondents also referenced the need to expand awareness of why monarch and pollinator conservation matters, and how individual or organizational actions fit within a larger strategy.

To sustain long-term conservation, respondents noted the need for sustained funding and structural support. Respondents emphasized that without ongoing financial support, programs often stagnate or end.

With the federal/state listings now likely, has personal motivation towards conservation changed and your organization or your stakeholders' approaches changed?
Across interviews, most respondents reported that personal motivation toward monarch conservation has largely remained steady, even as potential federal or state listings approach. Many noted their commitment to conservation stems from personal values or organizational missions that are not dependent on regulatory status. For example, several interviewees noted that whether the monarch becomes listed or not, they and their stakeholders will continue the work because they view conservation as a responsibility rather than a reactive effort. Some also stated that landowners are unlikely to change what they are doing in response to listing decisions, suggesting that voluntary conservation frameworks will continue to play an essential role.

For organizations, responses reflect more nuance. A few respondents noted that while motivation has not changed, a listing decision could shift opportunities, funding, requirements, or public awareness, which in turn might alter their approaches. Some expressed that listing could make it easier to impose or justify management restrictions, while others feared it could complicate relationships with stakeholders or create new administrative burdens.

Opinions differed on the effects of a federal or state listing. Several organizations, particularly community-focused partners, suggested that a formal listing might increase public interest and help "kickstart" new outreach or habitat initiatives. Others hoped that listing would not occur at all, fearing it could divert resources or strain regulating agencies. Overall, most groups see their internal motivation as constant, but recognize that a formal listing could reshape *how* they do their work—even if it does not change *why* they do it.

In what ways has the stakeholder collaboration facilitated by IMP contributed to tangible conservation outcomes or improved coordination among the stakeholders you work with?
Respondents described the IMP as an important catalyst for bringing together diverse partners and creating a shared sense of coordination that did not exist previously. Several interviewees noted that IMP helped major groups come together around unified goals, enabling clearer alignment on monarch-related habitat strategies. This collaboration has directly led to tangible conservation achievements, such as coordinated habitat creation, improved mowing or land-management practices, and stronger integration of pollinator considerations into local projects. The IMP's stakeholder network provided a space to convene partners, increase participation, and build momentum within their regional initiatives.

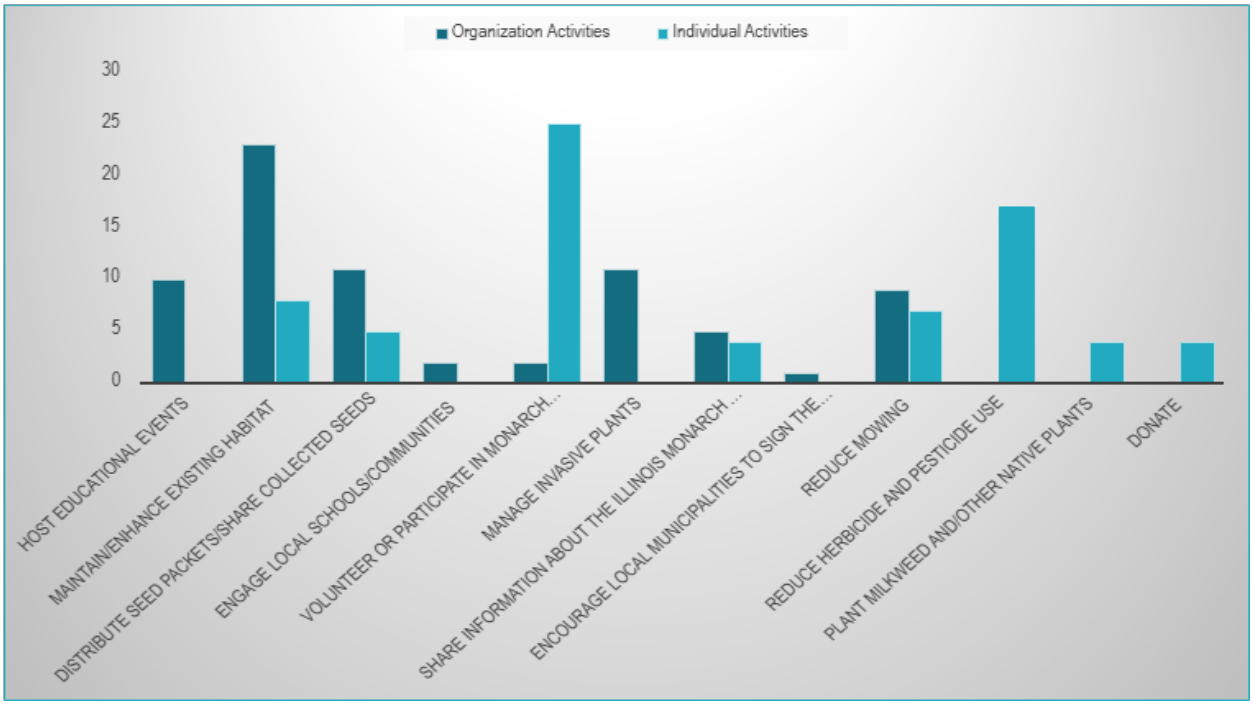
At the same time, respondents emphasized that IMP's collaborations also improved access to information and technical support. This allowed partners to tap into research, monitoring protocols, and educational resources they might not have had access to otherwise. Respondents described how IMP conversations helped shape management decisions such as rotational mowing practices, milkweed assessment methods, amplified public education efforts, and inspired continued engagement among volunteers. However, several respondents expressed that without a dedicated coordinator, some

partners struggled to engage or stay connected to ongoing efforts. Even with these gaps, most agreed that IMP has provided a valuable framework for collaboration, and that its unifying of stakeholders has contributed meaningfully to conservation across the state.

Annual Pledge

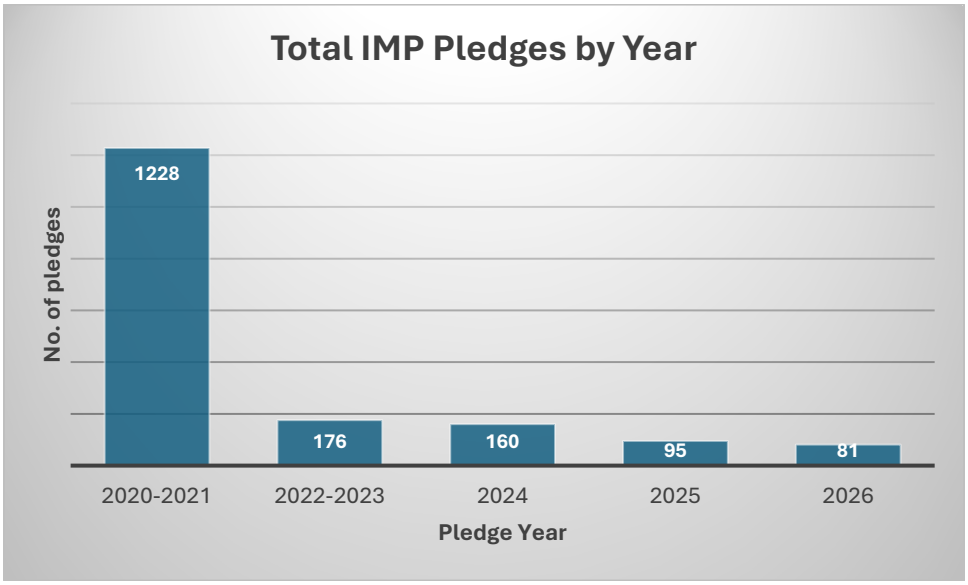
Analysis of IMP pledges from 2020 to 2026 revealed broad interest in pollinator conservation across a wide range of organizations and individuals. Pledge commitments consistently emphasize outreach through education, social media, and events. They also considered habitat creation and maintenance when pledging.

Figure A-4. Pledge Activities



However, reflecting comments shared in the interviews, there has been a gradual decrease in participation, and most motivation comes from one's own passion. The 2020–2021 period saw the highest participation, with 1,228 responses pledged, with much of it driven by individuals rather than organizations. Subsequent years show a downward trend in participation: falling to 176 in 2022–2023, 160 in 2024, 95 in 2025, and 81 in 2026. Figure A-5 summarizes the pledges by year.

Figure A-5. Total IMP Pledges by Year



Pledge trends also highlight shifting contributions between individuals and organizations. Early pledges show organizations driving large outreach numbers despite fewer responses, while later years indicate increasing public and youth engagement, particularly in educational settings. Top pledged actions such as volunteering, reducing herbicides/pesticides, reducing mowing, planting natives, and maintaining habitat remained consistent across all years, though specific emphases (e.g., seed sharing, invasive plant management) varied by year. Overall, the data suggests that while overall participation in pledges has declined, targeted conservation behaviors continue, and certain contributions (like seed distribution or increases in education) remain strong focal points within the IMP community.

Discussion

Considered together, the habitat modeling analysis, stakeholder interviews, and IMP annual pledge results offer helpful insights into the state of landscape-scale voluntary conservation in Illinois as well as impacts made by IMP and the Action Plan.

Effects of Land Use Change

Changes in milkweed stem counts were driven by both changes in adoption rates as well as changes in land cover between 2014 and 2024. Over this time period, the largest change in land cover was a decrease of 188,440 acres of agricultural land (Figures A-6 and A-7). Change detection analysis from 2014 to 2024 indicates that about 88,000 acres of this conversion went from agriculture to urban, about 86 Urban land cover was the next largest change, with an increase of 154,019 acres. There was also an increase of 95,531 acres of natural lands in Illinois in 2024 compared to 2014. Rights-of-way experienced the smallest change in acreage, with a decrease of 59,401 acres. Figure 6 illustrates the net change in land cover between 2014 and 2024 by cover type.

Figure A-6. Acres of land cover by category, 2014 to 2024

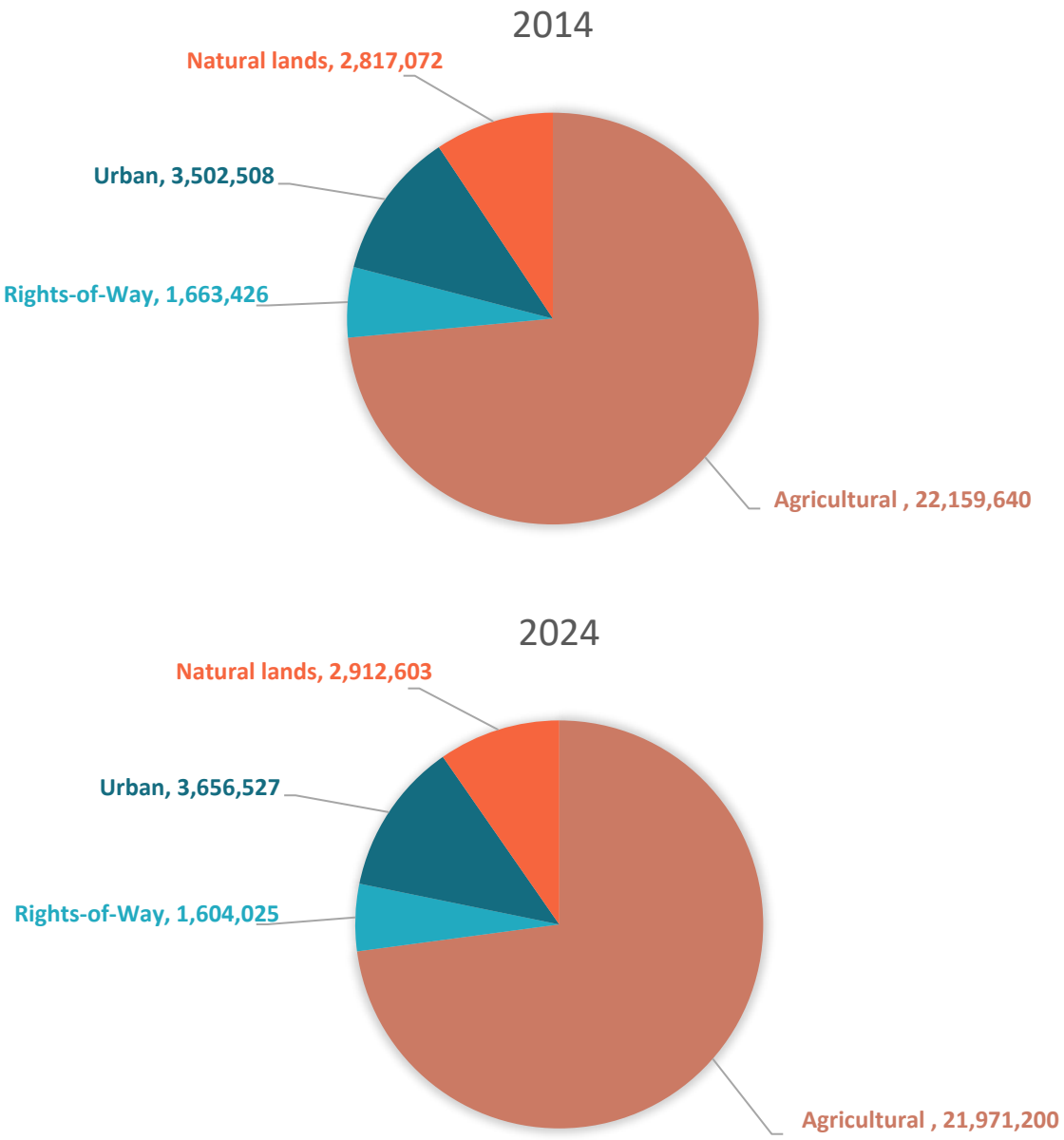
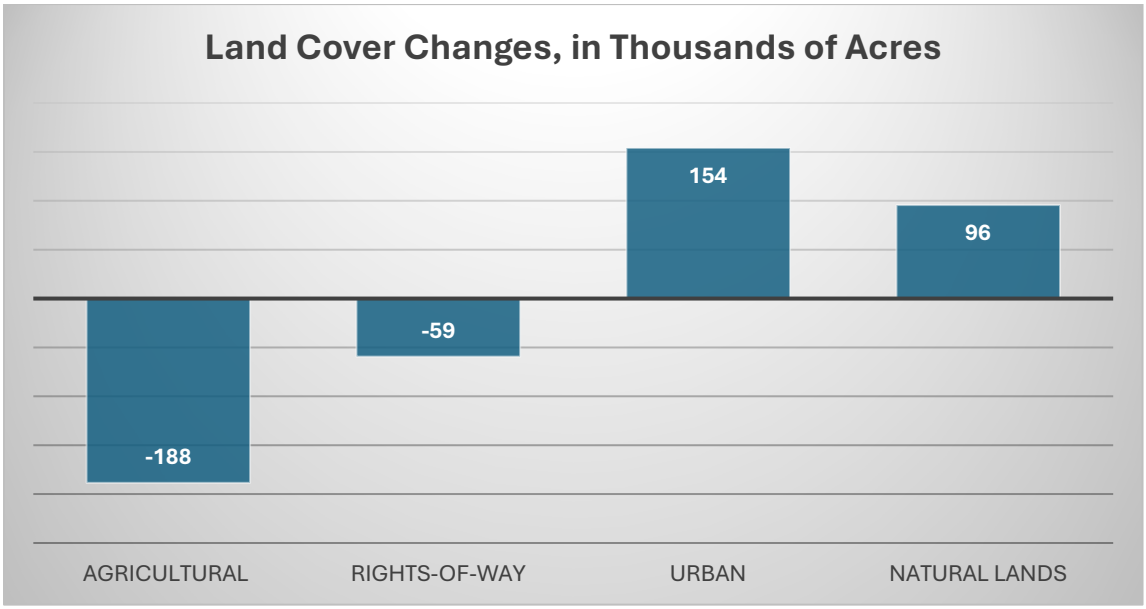


Figure A-7. Net change in thousands of acres by land cover class category



Voluntary Conservation Efforts Across Sectors

Over the past decade, voluntary conservation has been a central driver of Illinois' progress toward restoring monarch habitat, with each land use sector contributing in unique ways. The hybrid analysis conducted shows how agriculture, rights-of-way, natural lands, and urban areas collectively contributed to statewide gains in milkweed abundance between 2014 and 2024. Although the scale, data availability, and mechanisms of conservation varied widely across sectors, the findings revealed that large, structured programs such as CRP and the Monarch CCAA generated large, measurable habitat gains, while the more dispersed community based and municipal initiatives offered smaller but cumulatively significant contributions. At the same time, data gaps, uneven reporting, and sector specific challenges underscore the difficulty of tracking voluntary efforts at a landscape scale.

Findings from this assessment suggest Illinois is making net gains in the total number of milkweed stems added across the state. The estimated gain of approximately 108 million milkweed stems is more than two-thirds to the state's goal of adding 150 million stems by 2038. With 14 years to reach the 150 million stem target (from 2024), this represents encouraging progress. However, this analysis did identify several challenges that may need to be overcome to achieve the state's milkweed goal. These sector-level dynamics offer important context for understanding how Illinois has added an estimated 1082 million milkweed stems over ten years and where opportunities to strengthen and sustain monarch conservation still exist.

Agricultural

Illinois' agricultural landscape is by far the state's largest land-use sector (Table A-3). Voluntary conservation efforts were driven primarily by participation in CRP, especially the CP42 Pollinator Habitat practice. Although many agricultural practices can indirectly support pollinators, CP42 was the most intentional, habitat-focused intervention contributing to milkweed gains over the ten-year period. CP42 was treated separately from other CRP practices due to the availability of program-specific milkweed

density estimates collected through Illinois Natural History Survey field studies, allowing for more precise representation of CP42's contribution to milkweed stem abundance. Lack of geospatial data access required us to rely on non-spatial data available. Unfortunately, this limits the ability to see the distribution of these practices across the state, or make inferences based on the distribution of CRP participation.

A defining trend in the agricultural sector is the contrast between declining overall CRP acreage and a dramatic increase in CP42 enrollment. Between 2014 and 2024, Illinois lost more than 126,000 total CRP acres, yet CP42 expanded from just 4,433 acres to 120,274 acres, a net increase of 115,841 acres (USDA Farm Service Agency 2024). This expansion occurred despite broader pressures on agricultural conservation programs, including delayed Farm Bill reauthorization and decreasing opportunities for contract renewal. Both were factors that stakeholders noted created uncertainty and risk for long-term habitat maintenance. Still, CP42's alignment with the monarch habitat needs allowed it to compensate for losses in other CRP practices and remain a critical tool for milkweed establishment on agricultural lands.

Agricultural lands contribute the largest amount of acreage within the statewide model, yet only a modest net gain in milkweed stems on non-CRP agricultural lands. Voluntary agricultural conservation is capable of producing large nectar and milkweed benefits when supported through structured programs like CP42, but widespread adoption of conservation on row-crop landscapes outside of CRP remains limited. Stakeholder interviews reinforce this pattern. Many producers maintain interest in pollinator conservation but face constraints in capacity, guidance, or market conditions to increase their contributions.

Rights-of-Way

Voluntary conservation within the rights-of-way sector was driven largely by participation in the Monarch CCAA. Under this agreement, energy companies and IDOT voluntarily enrolled land where they committed to adopt conservation practice like rotational or timed mowing, targeted herbicide use, preservation of idle habitat, and use of native seed mixes to support monarch butterfly habitat. These adopted acres receive annual monitoring, enabling accurate estimates of milkweed stem densities and providing one of the more reliable datasets in the statewide modeling effort.

The rights-of-way sector experienced one of the most substantial increases in milkweed stems among all land-use sectors. The modeling results show that rights-of-way lands added approximately 46.6 million stems between 2014 and 2024. This reflects both the scale of transportation and utility corridors across Illinois and the structured nature of CCAA participation, which ensures that conservation practices are implemented consistently and monitored annually. In particular, IDOT's roadside management contributed significantly to gains, although the specific acreage under conservation is not fully known due to reporting gaps. Only 32,110 acres are annually verified as adopted by IDOT under the CCAA, but IDOT staff indicated that the true area managed with conservation mowing and related practices is far larger. To compensate for this uncertainty, the research team applied a conservative estimate by multiplying verified annual CCAA acreage by three (for each year of IDOT's enrollment), reflecting the assumption that IDOT rotated adopted acres over three years of enrollment. The UIC research team believes this is a conservative estimate when compared to the nearly 400,000 acres managed by IDOT. Ongoing work by IDOT to refine GIS-based acreage estimates suggests the potential for more accurate accounting in future assessments.

Energy utilities enrolled 137,510 acres with an average density of 133.92 stems/acre, producing more than 31.4 million stems, while transportation agencies reported an average density of 232 stems/acre, contributing 22.3 million stems. Conservation practices implemented by other rights-of-way sector organizations *not enrolled* in the Monarch CCAA (such as tollways, solar developers, cooperatives, and pipelines) were not included in the model due to a lack of reported data. To obtain better estimates in the future, these organizations could be encouraged to join the CCAA. Alternatively, randomized monitoring among non-CCAA transportation and energy ROW organizations may be necessary to improve estimates. This may be prudent, since the ROW sector appears to play an outsized role in providing pollinator habitat compared to most sectors.

Urban

Voluntary conservation in urban areas was driven by a collection of community-based programs and homeowner-led initiatives that emphasize small-scale plantings across cities, suburbs, and towns. These programs included the Mayor's Monarch Pledge (MMP), Monarch Watch Waystations, and the Chicago Living Corridors (CLC) network. These efforts encouraged individuals, organizations, and municipalities to create pollinator gardens, adopt reduced mowing practices, integrate native plants into yards and shared spaces, and register their conservation actions. Many of these efforts occur on small parcels and are not mapped. Because of this, the UIC research team incorporated these datasets into the model by estimating typical garden or lot sizes and applying representative milkweed densities from Johnston et al. (2019). Together, these urban datasets provided the best available representation of voluntary urban conservation adoption across Illinois.

There is also uncertainty around the contributions from the urban sector. Outside of data from (Johnston M.K. 2019), there has not been other urban-focused research documenting the change in milkweed density or conservation adoption prior to, or during, the analysis window evaluated. As a result, to be conservative in the model predictions, the same milkweed density estimates were used for both 2014 and 2024. Since there was a moderate increase in total urban areas (about 154,000 acres), this change accounted for the nearly 1.5 million additional urban milkweed stems. An estimated 914,000 stems were added through the Mayor's Monarch Pledge and other programs such as registered Illinois waystations. While these are commendable gains for these programs, these likely represent a fraction of on-the-ground habitat conservation occurring. The UIC research team assumes there is additional conservation engagement in homeowner-based milkweed and nectar plant gardening, especially in residential neighborhoods and individuals engaged in environmental education programming. To account for these undocumented contributions, the research team applied a higher milkweed stem density as reported in (Johnston M.K. 2019) to the actual number of Monarch Waystations and other reported urban pollinator gardens.

Modeling completed in Thogmartin et al. (2017) assumed no milkweed presence in most urban land covers. Field studies completed as part of Johnston et al. (2019) identified milkweed presence at various densities according to different types of urban land use. To account for these contributions, the research team substituted urban milkweed stem densities from Johnston et al. (2019) for all developed and urban land cover classes included within the modified Rohweder model for both 2014 and 2024. For more details see *Calculating the Effects of Milkweed Densities and Conservation Adoption* (above).

This analysis attempted to measure the contributions of urban conservation despite data gaps and assumptions made. The urban sector contributions noted are likely underestimated compared to actual habitat on the ground. Interviews and program data suggest that widespread homeowner interest in

native plants, schoolyard habitat projects, and community-based gardening efforts are increasing, but most of these contributions remain unmapped and unreported. While it may not contribute to the larger acreages or milkweed densities of other sectors, the urban sector is unique in its ability to engage thousands of individuals and families across the state.

Natural lands

Voluntary conservation within natural lands was driven largely by habitat management efforts undertaken by conservation organizations, land trusts, public land managers, and volunteers. Together these organizations and individuals oversee stewardship of grasslands, shrublands, pastures, and wetlands across Illinois. Their efforts include invasive species control, prescribed burning, remnant prairies and wetland enhancement, and the protection of natural areas. Using milkweed density values derived from CTAP field surveys were used to replace older defaults from Thogmartin et al. (2017) and improved representation of the voluntary habitat stewardship occurring across natural lands. Analysis results show an increase of over 95,000 acres, which contributed additional milkweed stems, but the vast majority of these stems are based on field data from the CTAP program, which showed significant increases in the percent land cover of milkweed species in grasslands, hayfields, and pastures. These findings suggest that voluntary habitat improvements by land managers may be having a significant impact on getting additional milkweed stems into the ground.

Stakeholder interviews suggest that conservation organizations continue to serve as essential advocates and practitioners of habitat restoration and enhancement, despite capacity limitations. Their work remains one of the most reliable and ecologically impactful components of Illinois' conservation landscape.

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Appendix B. IMP Action Plan Progress Summary Table

Goal	Objective	Strategy	Status	Progress Summary
Goal 1: Create an active collaborative of diverse stakeholders to increase cooperation in monarch conservation and help ensure the successful migration of monarchs through Illinois	Objective A: Engage key stakeholders to coordinate the implementation of the Illinois Monarch Action Plan	Strategy 1: Host regular statewide summits to increase cross-sector engagement and coordinate implementation of the Illinois Monarch Action Plan	A five-part virtual summit was held between October 2020 and May 2021 to launch the Illinois Monarch Action Plan. No additional summits have been hosted or planned.	1 of 3 actions in progress
		Strategy 2: Foster active participation among public and private stakeholders and across the state to increase awareness of the Illinois Monarch Action Plan	UIC has maintained an IMP mailing list and occasional email communications. Other engagement activities by sector have been mostly ad hoc or independently managed by individual organizations with limited coordination across the state. Several organizations have continued to promote IMP and monarch conservation at the Illinois State Fair and other events around the state.	3 of 4 actions in progress
	Objective B: Distinguish IMP as the coordinated statewide effort for monarch butterfly conservation in Illinois and provide essential support for collaborative activities	Strategy 1: Develop a recognizable IMP brand and consistent messaging about IMP, the Illinois Monarch Action Plan, and monarch conservation in Illinois	UIC has maintained the IMP website, which includes resources about IMP, monarch conservation and habitat, and outreach materials (including a communications toolkit). The volunteer-run Community Engagement Committee has developed social media campaigns, outreach activities, and events to raise awareness of IMP and monarch conservation, build consistent messaging, and highlight May as Monarch Month and Start Seeing Monarchs Day.	3 of 6 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
		Strategy 2: Support coordination among IMP leaders and with local, state, and regional partners	The volunteer-run Route 66 Monarch Flyway Committee and Community Engagement Committee have worked to engage stakeholders, raise awareness of IMP and monarch conservation, and promote habitat restoration and enhancement across diverse rural and urban landscapes. Limited other coordination among leaders, sectors, or committees has occurred since the launch of the Illinois Monarch Action Plan.	1 of 7 actions in progress
		Strategy 3: Identify and apply for collaborative grants or other funding to support implementation of the Illinois Monarch Action Plan	Stakeholder interviewees (NCRS, Route 66 Monarch Flyway Committee, Illinois Farm Bureau) referenced small grant support, noting these programs as important sources of supplemental funding for themselves and/or their members/partners. No known formal coordination for statewide collaborative grants has occurred.	1 of 4 actions in progress
Goal 2: Use the best available science on monarch butterflies and their habitat to inform conservation strategies	Objective A: Track emerging issues and needs related to monarch butterflies and their habitat, and identify mechanisms to address those needs	Strategy 1: Engage conservation experts to identify and address emerging issues and needs related to monarch butterflies and their habitat	No formal coordination has occurred among conservation experts or researchers.	0 of 4 actions in progress
		Strategy 2: Periodically review and evaluate conservation strategies and actions to align with best available science	No formal review has occurred since the launch of the Illinois Monarch Action Plan.	0 of 1 actions in progress
	Objective B: Encourage adoption of conservation strategies and actions based on best available science	Strategy 1: Apply the best available science to determine best management practices (BMPs) and guidelines for habitat implementers and other practitioners	BMPs, such as seed mix designs and habitat establishment and management recommendations, have been developed independently by individual organizations with limited coordination across the state.	1 of 3 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
Goal 3: Conduct education and outreach to align statewide activities, inspire Illinoisans to engage in monarch conservation, and deliver the technical resources necessary to implement the Illinois Monarch Action Plan	Objective A: Reach the general public through targeted education and outreach activities	Strategy 1: Provide general education about monarch conservation, with a focus on why it is important to take action	Individual organizations across the state have engaged in an increasing number of efforts to educate the general public, landowners, and employees about monarch conservation, including through educational displays, habitat demonstration plots, and seed packet giveaways.	1 of 5 actions in progress
		Strategy 2: Create a buzz about monarch conservation across Illinois	The volunteer-run Community Engagement Committee has developed social media campaigns and hosted/attended events to raise awareness of IMP and monarch conservation. Other individual organizations have similarly conducted their own outreach to build awareness and interest in monarch conservation.	3 of 6 actions in progress
	Objective B: Encourage leaders and decision-makers to invest in monarch conservation	Strategy 1: Develop and disseminate outreach materials and resources to illustrate the ecological, economic, and cultural value of monarch habitat	The IMP website provides sector-specific resources to support monarch conservation. Individual organizations have also developed additional resources to support their stakeholders since the launch of the Illinois Monarch Action Plan.	1 of 2 actions in progress
		Strategy 2: Encourage individuals and organizations to implement conservation actions by recognizing their achievements	The Illinois Monarch Pledge was developed in 2020 and has become an annual pledge for individuals and organizations to commit to and report on their conservation achievements. To date, 143 organizations and 1516 individuals have participated in the pledge. Since the launch of the Illinois Monarch Action Plan, the number of Monarch Watch Waystations in Illinois has increased to XX and the number of University of Illinois Extension Pollinator Pocket sites has increased to 690.	2 of 5 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
	Objective C: Provide training, curriculum, and technical assistance to habitat implementers and other practitioners	Strategy 1: Create curriculum and conduct training events for habitat implementers and other practitioners to encourage adoption of habitat best management practices (BMPs) and adaptive management	No formal curricula or trainings have been developed or conducted for IMP.	0 of 3 actions in progress
		Strategy 2: Deliver technical assistance to support habitat implementers and other practitioners to more efficiently and effectively restore and enhance new and existing habitat for monarchs	The IMP website provides sector-specific technical resources to support monarch conservation. Individual organizations have also developed and delivered additional resources and expertise to support their stakeholders since the launch of the Illinois Monarch Action Plan.	2 of 9 actions in progress
Goal 4: Support populations of monarch butterflies and other pollinator species by preventing loss of existing habitat and by adding 150 million stems of milkweed embedded in appropriate nectar sources onto the landscape by 2038	Objective A: Identify existing habitat on the ground and minimize habitat loss by addressing threats, including conversion to other land use types and other forms of habitat degradation	Strategy 1: Identify and prioritize lands with existing habitat that have the highest risk for conversion or degradation and develop rapid response plans to address potential habitat loss	UIC worked with energy and transportation organizations in the Chicagoland area to develop a prioritization map for habitat projects, taking into account existing high-quality biodiversity areas. No other coordinated identification or prioritization processes are known to have been implemented in other sectors to address habitat loss through conversion or degradation. The status of other recommended actions is not known.	1 of 8 actions in progress
		Strategy 2: Avoid accidental conversion of habitat to other land uses by designating or indicating existing habitat	Illinois Department of Transportation has a pilot program to develop long-term integrated roadside vegetation management (IRVM) plans by district. Individual organizations and landowners have developed their own methods for designating existing habitat (through signage or other	5 of 10 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
			means), though this is not IMP branded and does not yet appear to not be broadly or consistently adopted, so it is difficult to gauge the current status. There is currently no mechanism to track pollinator habitat acres protected annually through conservation acquisition or easement.	
		Strategy 3: Reduce the impacts of habitat degradation from land management practices and chemical use	The IMP mowing guideline has been promoted with landowners and land management organizations, particularly in the agriculture and rights-of-way sectors, to reduce impacts from the extent and timing of mowing. The status of other recommended actions is not known.	2 of 18 actions in progress
	Objective B: Enhance existing habitat through the use of best management practices to increase the density and diversity of beneficial plant species	Strategy 1: Identify and prioritize lands for enhanced habitat management, taking into consideration both conservation value and practical implementation	UIC worked with energy and transportation organizations in the Chicagoland area to develop a prioritization map for habitat projects, taking into account existing high-quality biodiversity areas. No other coordinated identification or prioritization processes are known to have been implemented in other sectors for enhancing existing habitat.	2 of 6 actions in progress
		Strategy 2: Improve the management of invasive species that threaten the quality of existing habitat	Energy and transportation organizations enrolled in the Monarch CCAA are implementing invasive species BMPs, such as selective integrated vegetation management (IVM) practices, in certain areas to control invasive species that threaten habitat. No other coordinated actions are known to have been implemented to improve the	4 of 20 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
			management of invasive species across the state.	
		Strategy 3: Adopt best management practices (BMP), such as interseeding with native seeds, prescribed burning, and conservation mowing	The IMP mowing guideline remains the only cross-sector, statewide BMP developed to date. Individual organizations have developed additional BMP resources to share with their stakeholders since the launch of the Illinois Monarch Action Plan. Agriculture organizations have continued to promote management of existing conservation areas through programs such as CRP CP42 and EQIP. UIC has engaged energy and transportation organizations across the state in the Monarch CCAA, which has included promoting BMPs for existing vegetation management and adopting improved mowing regimes. The status of other recommended actions is not known.	7 of 17 actions in progress
	Objective C: Create or restore new habitat on favorable lands across different land types using best management practices	Strategy 1: Identify and prioritize lands for new habitat restoration, taking into consideration both conservation value and practical implementation	UIC worked with energy and transportation organizations in the Chicagoland area to develop a prioritization map for new habitat projects. No other coordinated identification or prioritization processes are known to have been implemented in other sectors for creating or restoring new habitat. The Illinois Farm Bureau has created a Pollinator Conservation Grant program to incentivize new habitat projects across the	1 of 7 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
			state. No known milkweed stem or acreage goals have been established within any of the sectors. The status of other recommended actions is not known.	
		Strategy 2: Identify potential public and private sector partners and assist them with implementing targeted programs to create or restore new habitat	Individual organizations have encouraged their stakeholders to implement new habitat projects through the Monarch Waystation and IMP pledge programs. Energy and transportation organizations enrolled in the Monarch CCAA have adopted habitat set-asides to meet their conservation targets. In addition, ComEd's Prairie Restoration Program has continued to expand. Individual organizations have also partnered with key stakeholders to implement new habitat projects in high-visible areas, such as the Illinois State Fairgrounds, by providing supplemental funding, technical assistance, or other support. The status of other recommended actions is not known.	10 of 23 actions in progress
	Objective D: Build capacity for habitat restoration and enhancement across the agriculture, rights-of-way, urban, and natural lands sectors	Strategy 1: Increase the availability of native seed and plant resources necessary to meet demand, with special emphasis on the availability of regionally appropriate milkweed species	Individual organizations have supported, promoted, and participated in seed giveaways and plant sales to help increase the availability of native seed and plant resources across the state. No known statewide or cross-sector coordinated efforts are known to have occurred.	1 of 11 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
			The status of other recommended actions is not known.	
		Strategy 2: Develop strategic partnerships to advance habitat conservation on the ground	No new strategic action teams (e.g., regional, cross-sector) were identified since the launch of the Illinois Monarch Action Plan. Energy and transportation organizations across the state have continued to participate in the Rights-of-Way as Habitat Working Group and related initiatives. ComEd has continued their Green Region grant program to increase habitat on the ground. Other strategic habitat partnerships between energy and transportation organizations and others (such as Pheasants Forever) have created additional habitat across the state. Homeowner habitat programs, such as Conservation@Home and others, have expanded throughout the state. The status of other recommended actions is not known.	8 of 24 actions in progress
		Strategy 3: Advocate for programs, policies, funding, and other resources that promote habitat conservation on the ground	Agriculture organizations have promoted cost-share and technical assistance programs for landowners as well as K-12 outreach programs, such as Ag in the Classroom, which create habitat gardens at schools. Energy and transportation organizations have	8 of 21 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
			funded and participated in research on habitat quality on their managed lands. In addition, seven energy and transportation organizations have enrolled habitat in the Monarch CCAA. 132 local governments have taken the Mayors Monarch Pledge. Individual organizations working in the urban sector have created demonstration gardens to illustrate the aesthetic and ecological benefits of pollinator habitat. No other coordinated advocacy for programs, policies, funding, or other resources are known to have occurred since the launch of the Illinois Monarch Action Plan. The status of other recommended actions is not known.	
		Strategy 4: Promote the Route 66 Monarch Corridor as a showcase initiative to incentivize habitat restoration and enhancement across a variety of landscapes from Chicago to St. Louis	The volunteer-run Route 66 Monarch Flyway Committee has worked to engage stakeholders across sectors, raise awareness of IMP and monarch conservation, and showcase habitat projects on diverse rural and urban landscapes. Cross-sector participation on the committee and formal coordination and outreach across sectors has been somewhat limited since the launch of the Illinois Monarch Action Plan. The status of other recommended actions is not known.	1 of 13 actions in progress

Goal	Objective	Strategy	Status	Progress Summary
Goal 5: Standardize data collection and monitoring for monarch butterfly habitat	Objective A: Identify existing data and data gaps to quantify baseline and potential monarch butterfly habitat	Strategy 1: Convene experts from each sector to evaluate and analyze existing data available to quantify 2014 baseline habitat quality and quantity, as well as potential habitat	As part of this progress report, UIC has performed a modeling exercise to quantify an estimated baseline of monarch habitat in Illinois in 2014 and habitat progress in 2024.	1 of 2 actions in progress
		Strategy 2: Quantify impacts of conversion of habitat to other land uses and develop mechanisms to track conversions	No known coordinated actions have been taken to quantify or track habitat conversions.	0 of 3 actions in progress
	Objective B: Develop and implement a statewide monitoring plan to evaluate and track implementation of the Illinois Monarch Action Plan	Strategy 1: Identify common tracking mechanisms and reporting platforms for documenting progress on habitat goals and other action items identified in the Illinois Monarch Action Plan	No formal statewide tracking mechanisms or reporting platforms have been developed beyond the reporting portion of the Illinois Monarch Pledge. UIC assisted some organizations in reporting conservation actions to the Monarch Conservation Database (MCD) hosted by the U.S. Fish & Wildlife Service prior to that platform being retired. This progress report serves as a 5-year summary of the implementation status of the Illinois Monarch Action Plan and the status of the monarch butterfly population.	2 of 4 actions in progress
		Strategy 2: Support all stakeholders in monitoring trends in monarch habitat quality and the impacts of various threats on public and private lands across the state	The volunteer-run Community Engagement Committee has hosted an annual IMP BioBlitz in June every year since 2022 and promoted other monarch community science programs over social media. No other coordinated efforts are known to have taken place for the other recommended actions.	1 of 3 actions in progress