Urban Pollinators Update

Dave Smitley, July 16, 2019
Michigan State University


Pollinator: any animal moving
pollen from one flower to another
The most important group: bees.

The most enjoyable: butterflies.

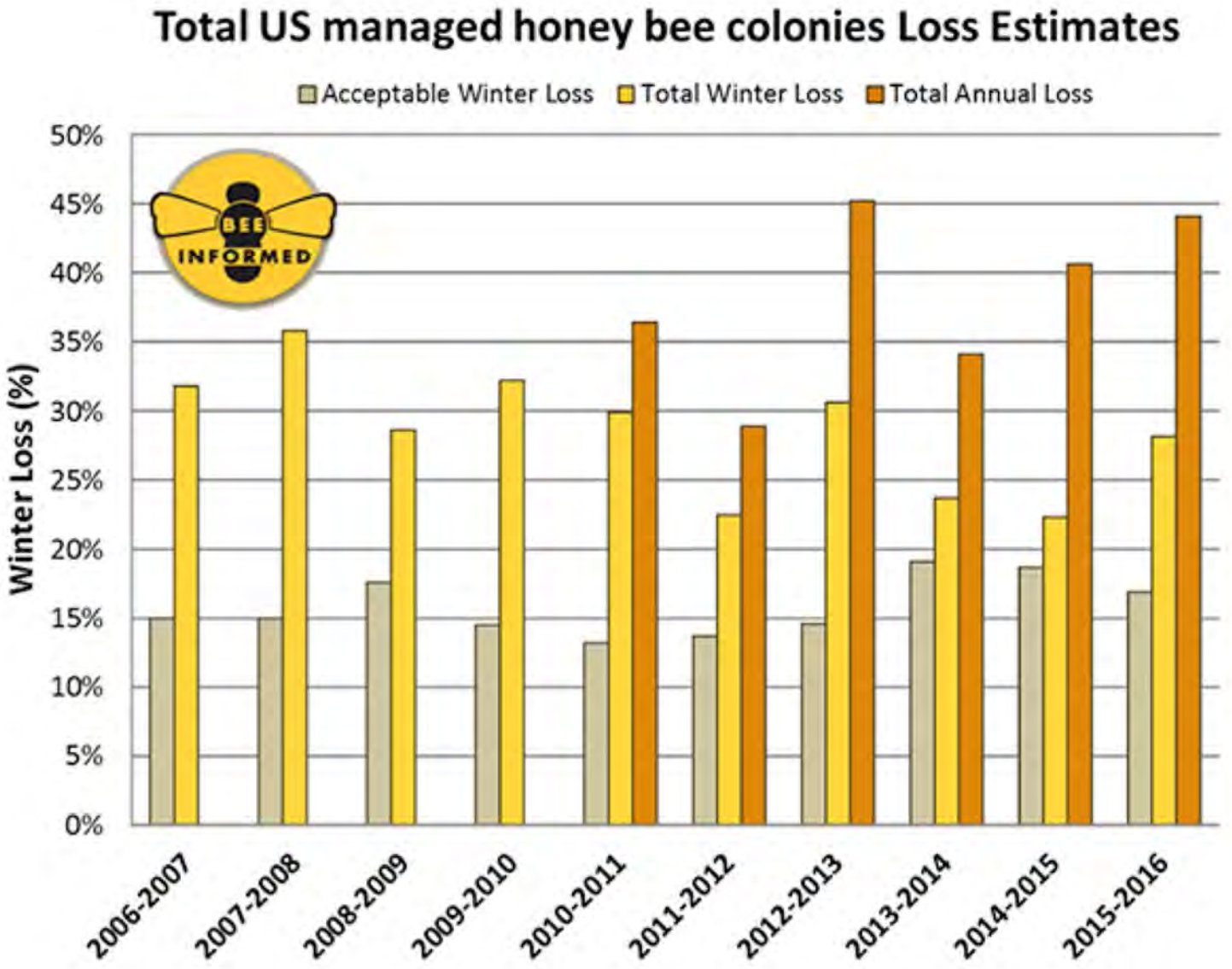

Single most important species
Apis mellifera, European hone
bee.

But 10 -15 spp. of bumble bees and hundreds of species of native bees are just as important

Groundwork Somerville

Fritz Haeg

Bee Decline: Loss of honey bee colonies, and documented loss of some species of bumble bees



April 2015

Bee declines driven by combined stress from parasites, pesticides, and lack of flowers

Dave Goulson,* Elizabeth Nicholls, Cristina Botías, Ellen L. Rotheray

Over 170 scientific papers are cited.

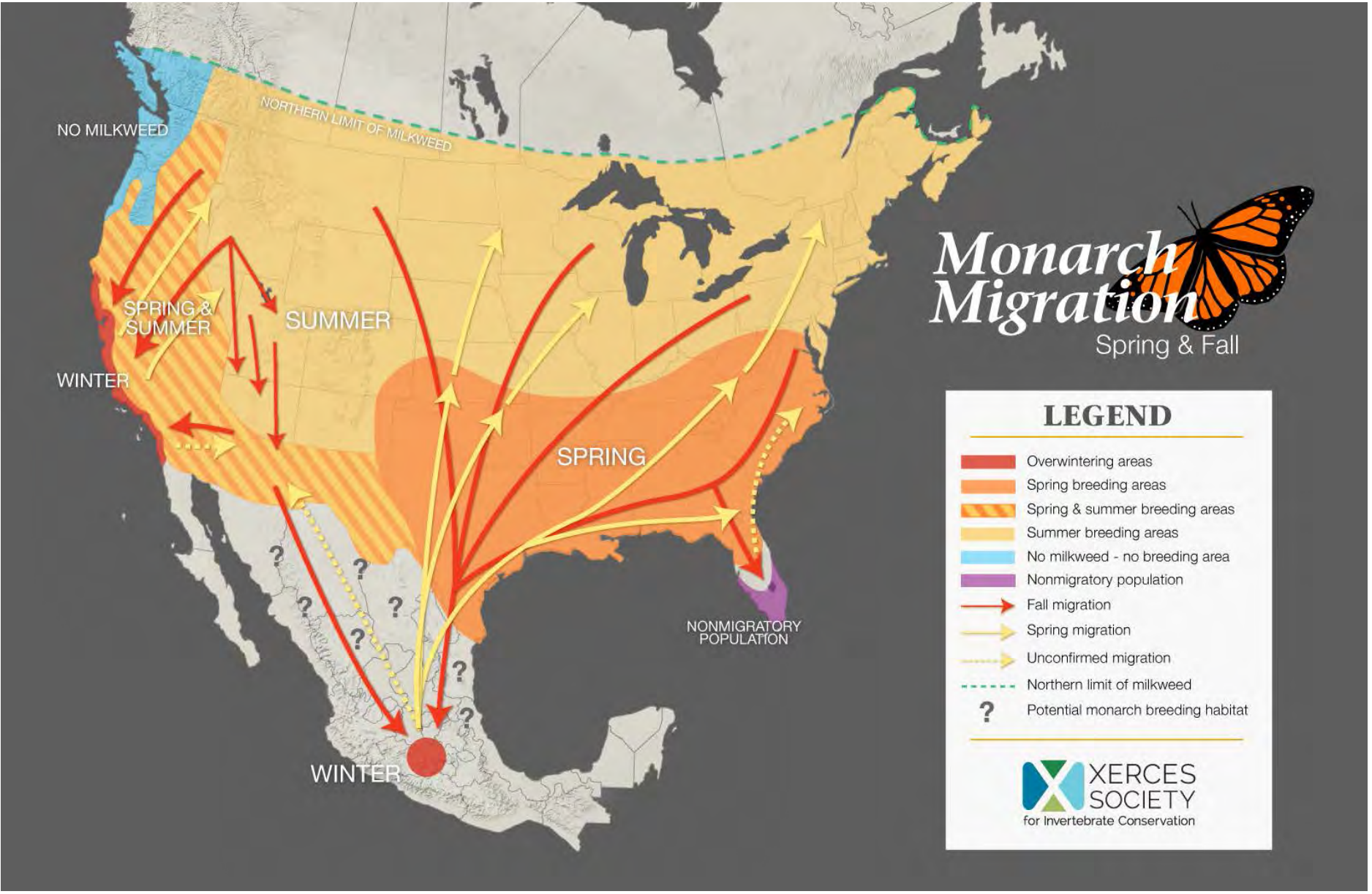
Major factors that threaten pollinator health

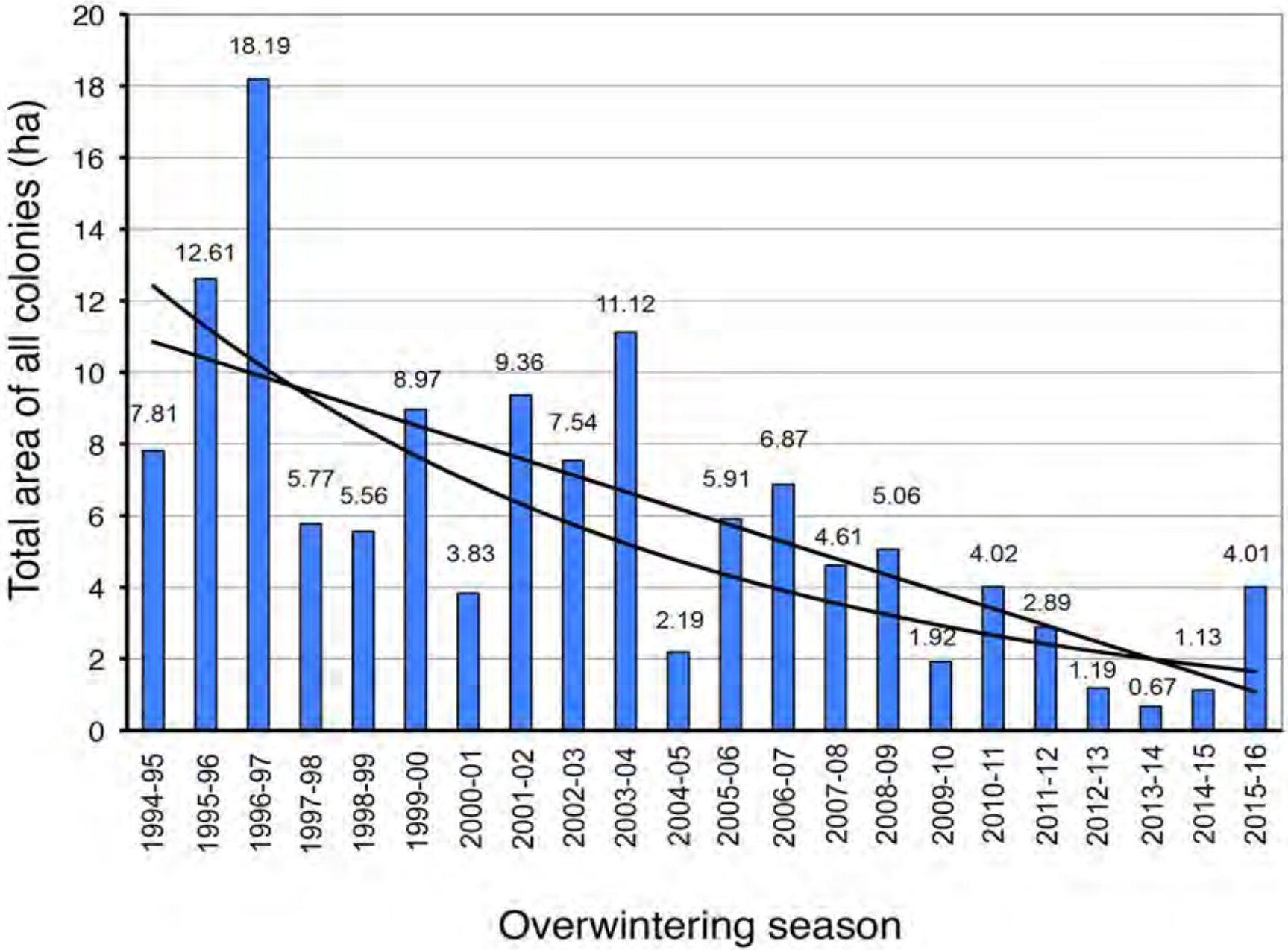
- Parasites and pathogens

- Loss of habitat (flowers)

- Pesticides

The Monarch Butterfly- a threatened species?


NO MILKWEED
NORTHERN LIMIT OF MILKWEED
SPRING & SUMMER
SUMMER
WINTER
SPRING
NONMIGRATORY POPULATION
WINTER
Monarch Migration
Spring & Fall
LEGEND
Overwintering areas
Spring breeding areas
Spring & summer breeding areas
Summer breeding areas
No milkweed - no breeding area
Nonmigratory population
Fall migration
Spring migration
Unconfirmed migration
Northern limit of milkweed
Potential monarch breeding habitat
XERCES SOCIETY
for Invertebrate Conservation


Total area of all colonies (ha)
20
18
16
14
12
10
8
6
4
2
0
18.19
12.61
11.12
9.36
8.97
7.81
7.54
6.87
5.91
5.77
5.56
5.06
4.61
4.02
4.01
3.83
2.89
2.19
1.92
1.13
1.19
0.67
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
Overwintering season

What are the suspected causes of decrease in the Monarch butterfly population in North America?

- Loss of milkweed habitat due to cleaner agricultural fields
- Loss of overwintering habitat in Mexican mountains
- A rare freeze event two years ago
- Pesticides?

General Best Management Practices for Homeowners to Protect Pollinators: Focus on Highly Attractive Plants

- Avoid pesticides as much as possible
- Do not spray flowers of plants attractive to bees
- Do not apply soil drenches of imidacloprid or other systemic insecticides to plants attractive
- to bees
- Use low impact pesticides (soaps, oils, *Bt*, neem, etc.)

"Protecting and enhancing pollinators in urban landscapes for the US North Central Region"

- Factors that threaten pollinator health
- Creating pollinator-friendly habitat
- Better habitat for bees
- Flowers throughout the year
- Selection and care of trees and shrubs
- How to control invasive pests
- Do not spray attractive plants
- Avoid spraying flowers with fungicides
- Best Management Practices

How to protect pollinators in urban landscapes and gardens

New to the updated 2019 version:

- Biological control and highly selective new products that can be used for pest management while protecting pollinators.
- Potential impact of mosquito and nuisance insect sprays on pollinators.
- Impact of fungicides and bactericides on pollinators, and a link to a comprehensive list of fungicides (Appendix 1) and their potential impact on pollinators.

This resource is a 30-page PDF and will answer nearly every question that gardeners have about pollinators