

Eastern honeybee beekeeping in Japan and its socio-ecological context: a transdisciplinary, more-than-human journey

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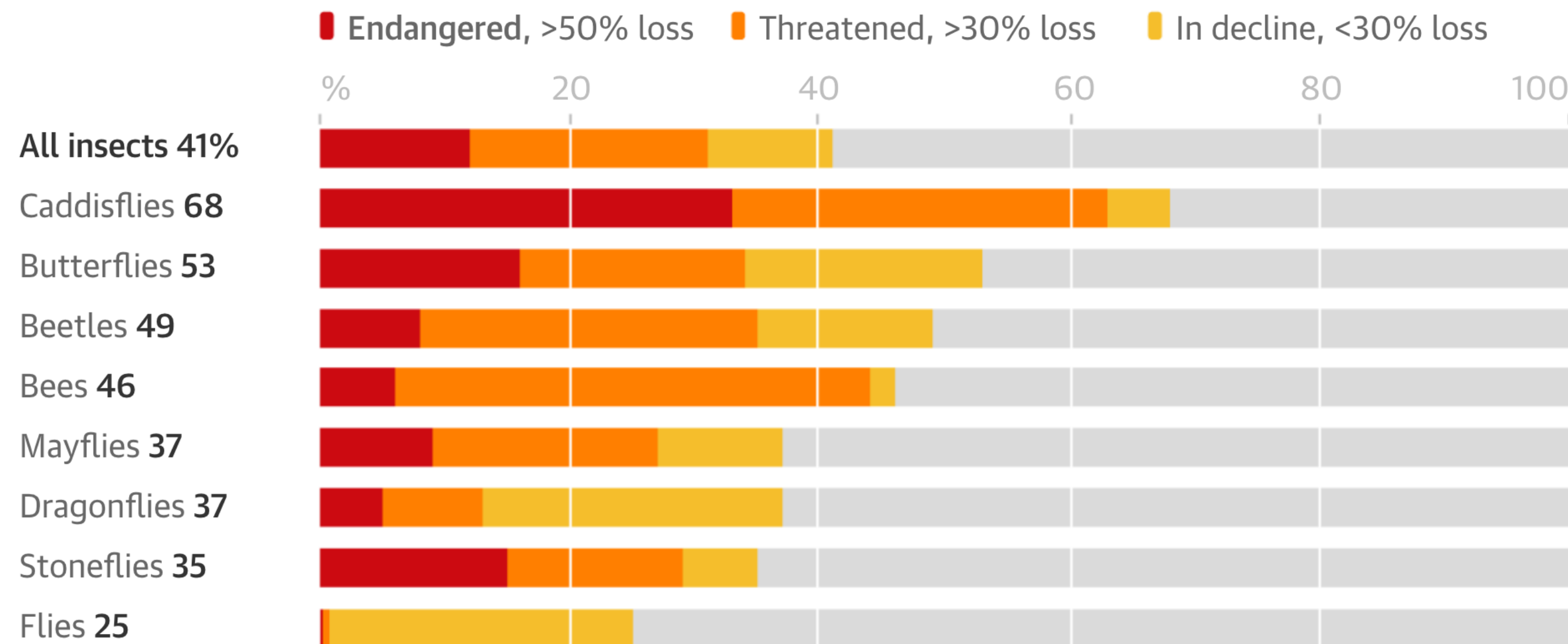
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Environmental Management in Dynamic Socio-Ecological Systems I, IAG 2019 Hobart

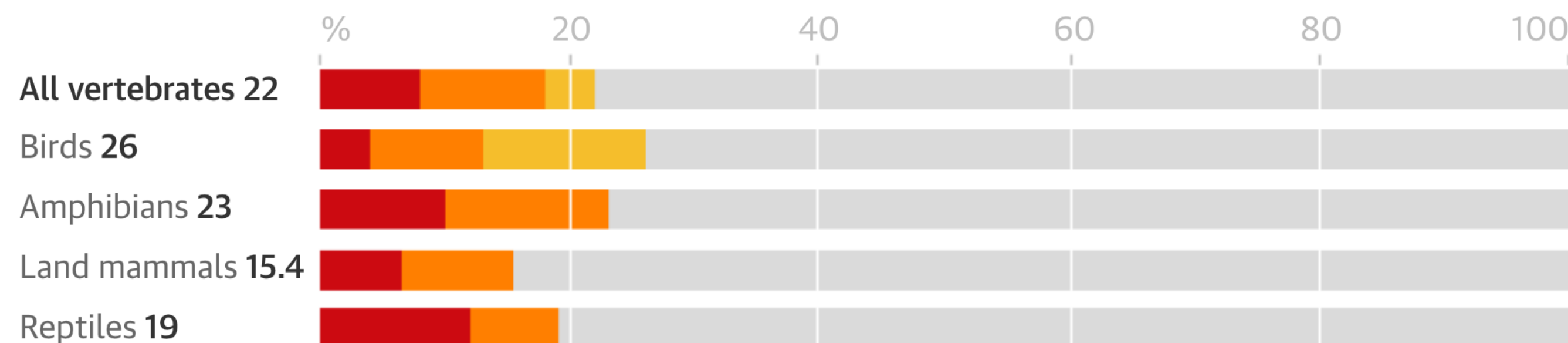
Background

- Insect decline ‘threatens catastrophic collapse of nature’s ecosystems’ (Sánchez-Bayo & Wyckhuys 2019)
- Pollinators particularly important for food production
- Honey bee as iconic species frequently in the news & target of policy, social movements
- “Being/living with” more-than-human

41% of global insect species have declined over the past decade ...



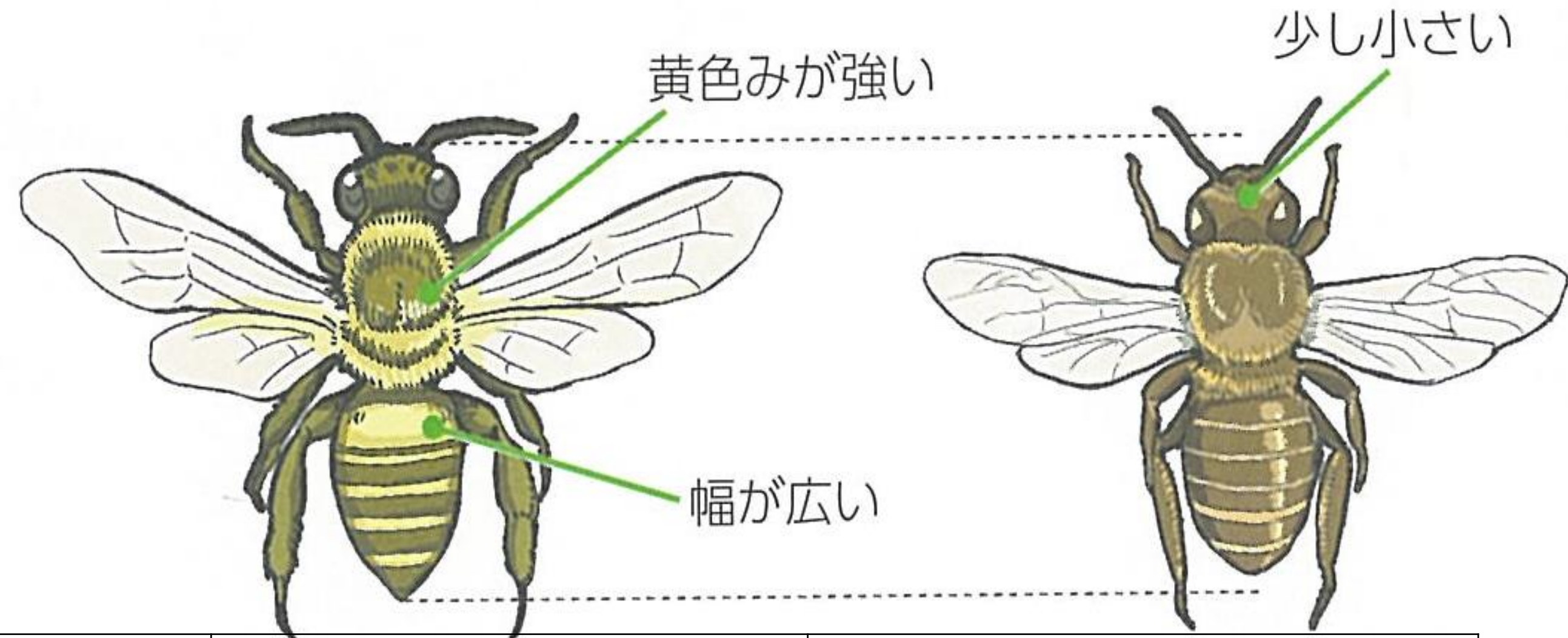
... compared with 22% of vertebrate species



Guardian graphic. Source: Sánchez-Bayo & Wyckhuys, Biological Conservation, 2019

Research gaps

- Most research on *Apis mellifera*, limited work on *Apis cerana* (Asian / Japanese honeybee)
- Limited research on social aspects (practices, policies, multi-stakeholder interactions)
- Limited research in Japan and other East Asian countries
- Role of non-professional beekeeping with diverse livelihoods & socio-ecological restoration?



	'WESTERN BEE'	'ASIAN/JAPANESE BEE'
size	12-14mm	10-13mm
origin	Brought in by 19 th century from US	Local (but likely brought in from China centuries ago)
status	domesticated	ferral/ semi-domesticated
character	curious	calm
honey yield	>10kg single-flower	5kg multi-flower
pest	Varoa Mites	Akarina Mites
predator	Japan. Giant Hornets	Bears

((Takayasu (2017) "Illustrated Manual – 1st Time Beekeeping))

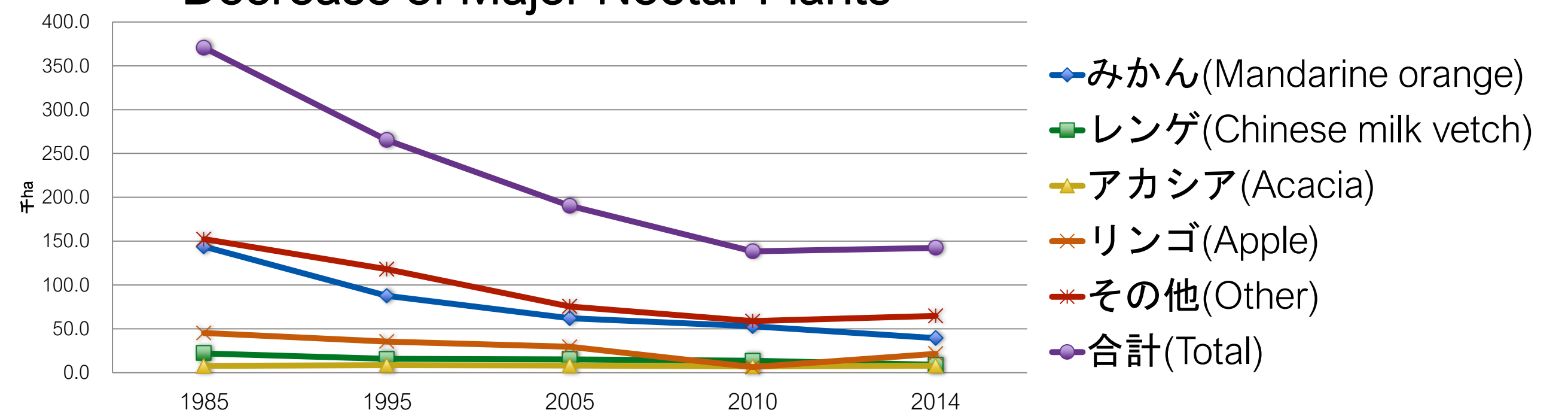


Overview: Beekeeping in Japan

- Divide? Commercial/professional beekeepers keep Western bee, hobby beekeepers -> Japanese bee?
- Lower honey consumption, import-dominated (esp. China)
- Hidden tradition (low awareness)
- Diverse hobby beekeeping practices
- Semi-domesticated Japanese bee
- Decrease in nectar plants

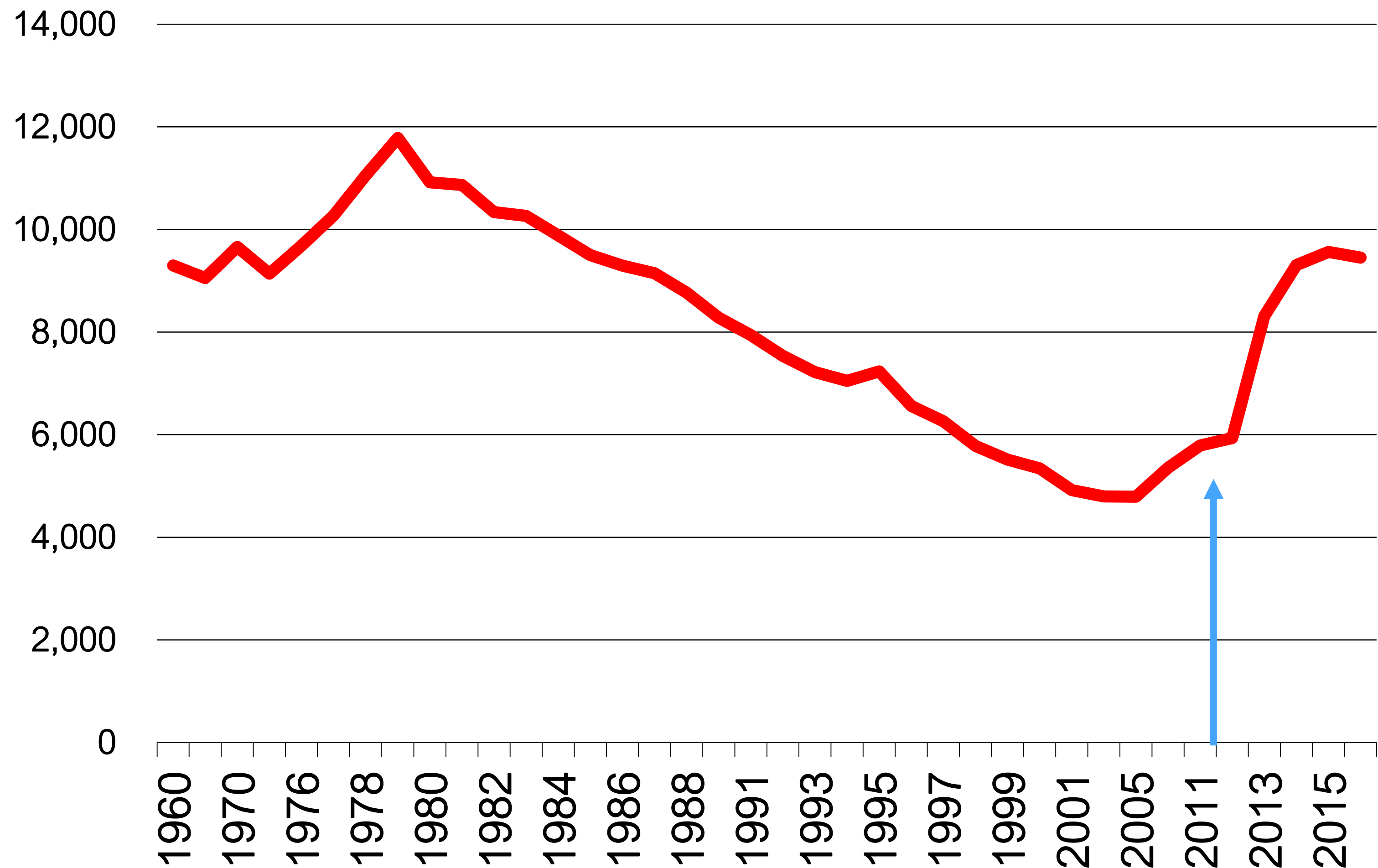


Decrease of Major Nectar Plants



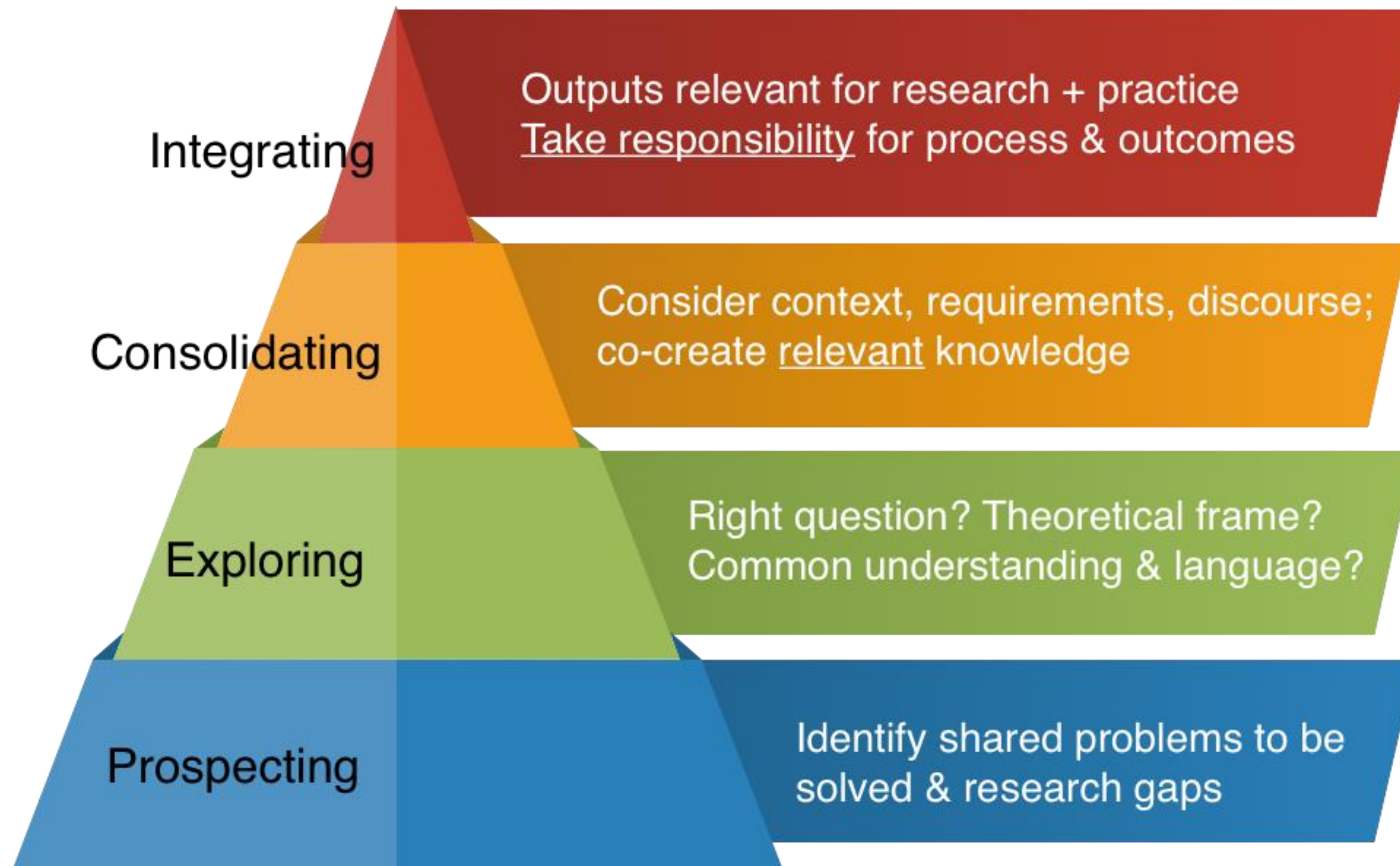
Social dynamics: fall & rise of beekeeping

- Fall by almost two-thirds from peak by 2005
- Jump in number after policy change to include hobby beekeepers (change in registration system)
- Growing hobby beekeeper scene
- Diversification: CSR, school projects etc
- Poor data (fragmentation, lack of policy alignment)

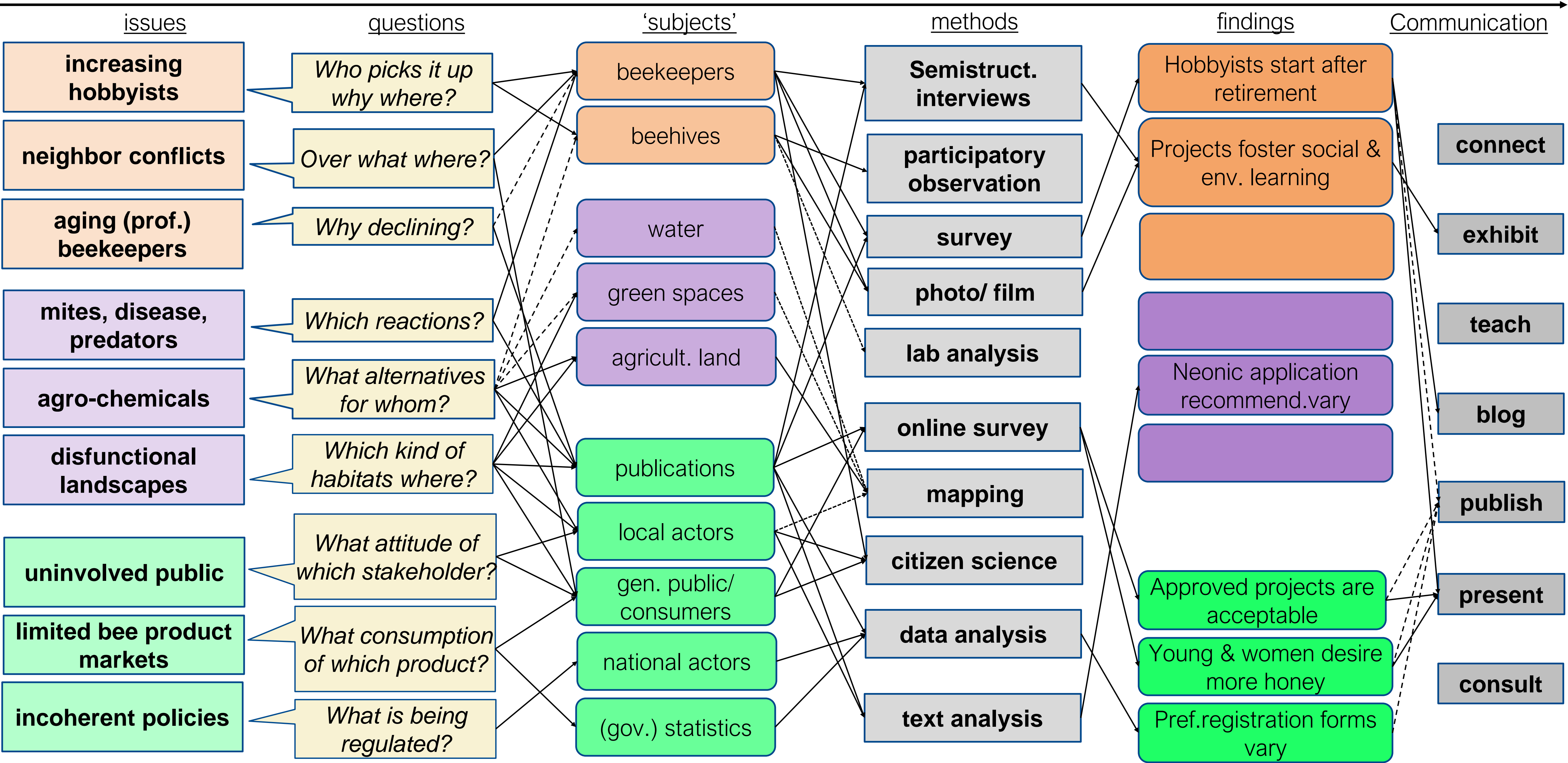


Official number of beekeepers in Japan

Trandisciplinary research as method

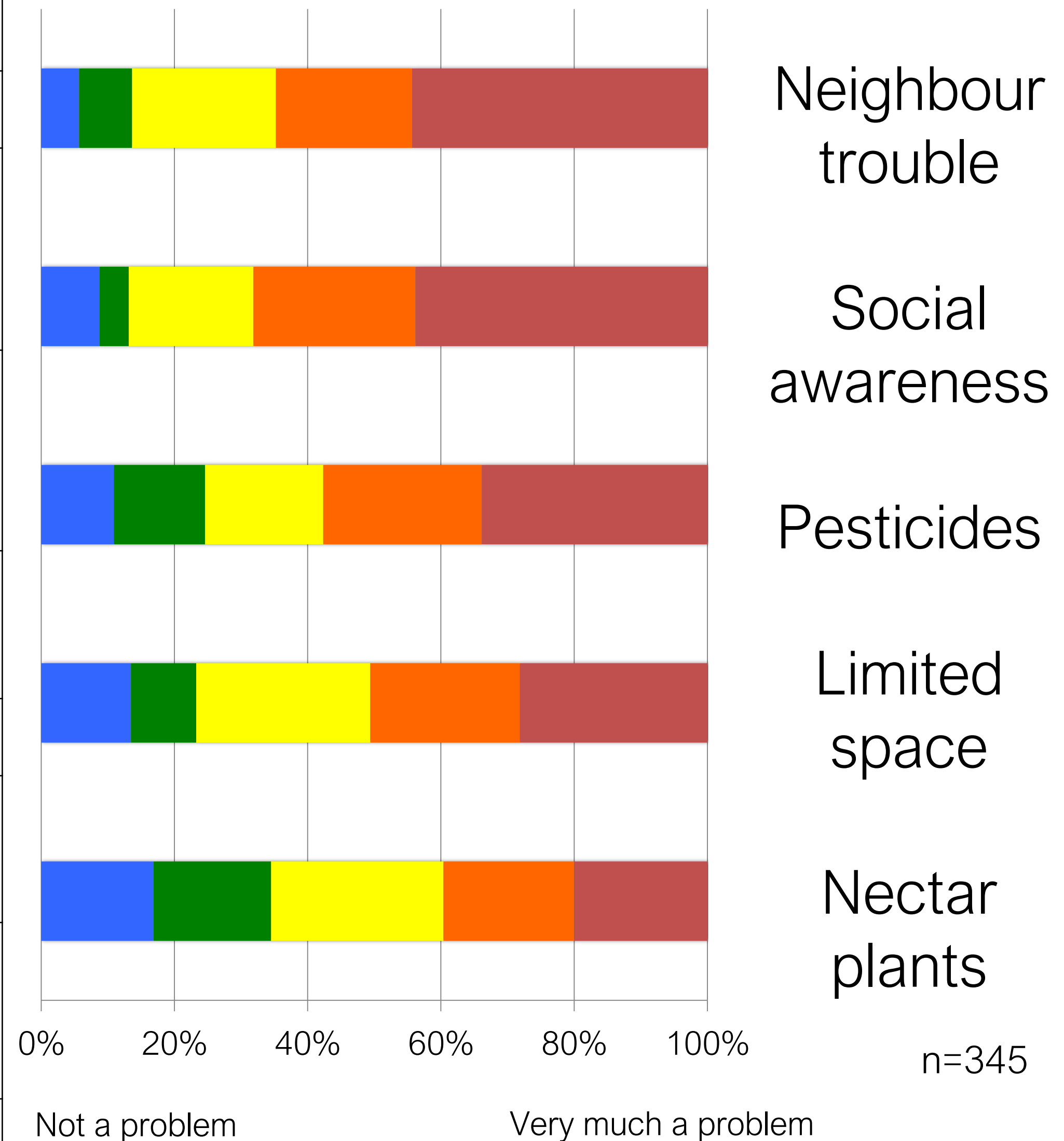


Transdisciplinary Research Process



Results: beekeeper survey

Bee	A. melifera	A. cerana
trend	Declining number	Growing
heritage	Family dynasties	For about 5-10 years on avg./ fulfilling childhood dream after retirement
Learning source	learned at home knowledge	learn from acquaintances/ neighbors/ friends
Source of bees	Queen rearing & buying, inherited hives	Catching/ Luring, sharing
Hives	> 100	<10
Regulation	Registered & monitored by vet	Sometimes registered, but rarely monitored
Bee relationship	Livestock: Lending Bees, Selling honey	Bee as pet/ friend
location	contracted land	own land



Results: urban resident survey

- Only 67% have honey at home (n=700)
- Younger generation, women consumers: food + health/beauty product
- Japanese bee honey valued more highly
- 50% don't know honey bees in Japan
- Weak support for urban beekeeping (40% "inappropriate", 60% opposed to neighbor keeping bees)
- Official "license" system vital for support
- More support for urban greening etc.



Maeda Kyoko: "Spoonful of honey"

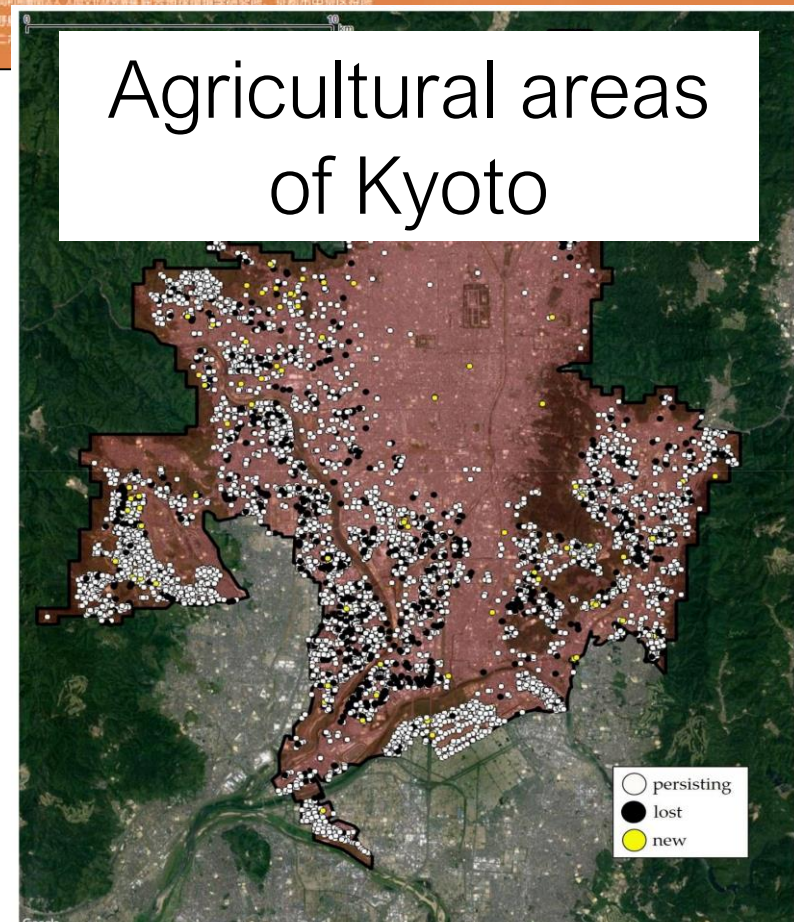
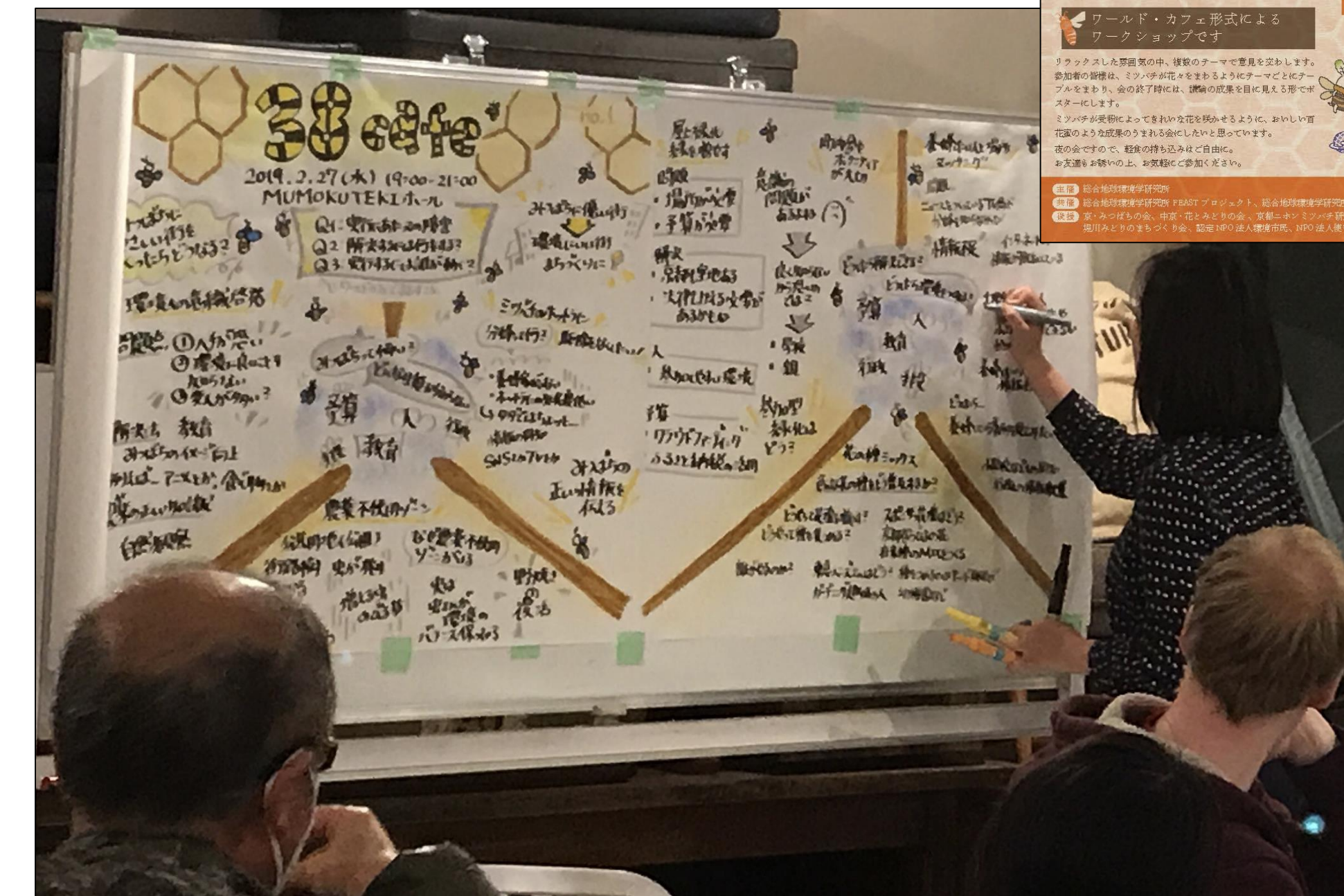
Uphill battles: pesticides

- Focus on neonicotinoids, everyday life “with”
- Shop survey with citizen scientists (78 stores):
 - Availability of neonic-containing products for home & garden use: 61 identified (21 indoor)
 - Hard to identify for consumer (small text, pesticide names, product diversification)
 - Multi-neonic products -> compound toxicity?
 - Trend towards ever more “effective” products
- User survey (n=1000):
Low awareness, but want rethink of policy!



Bee-friendly cities: stakeholders & policy

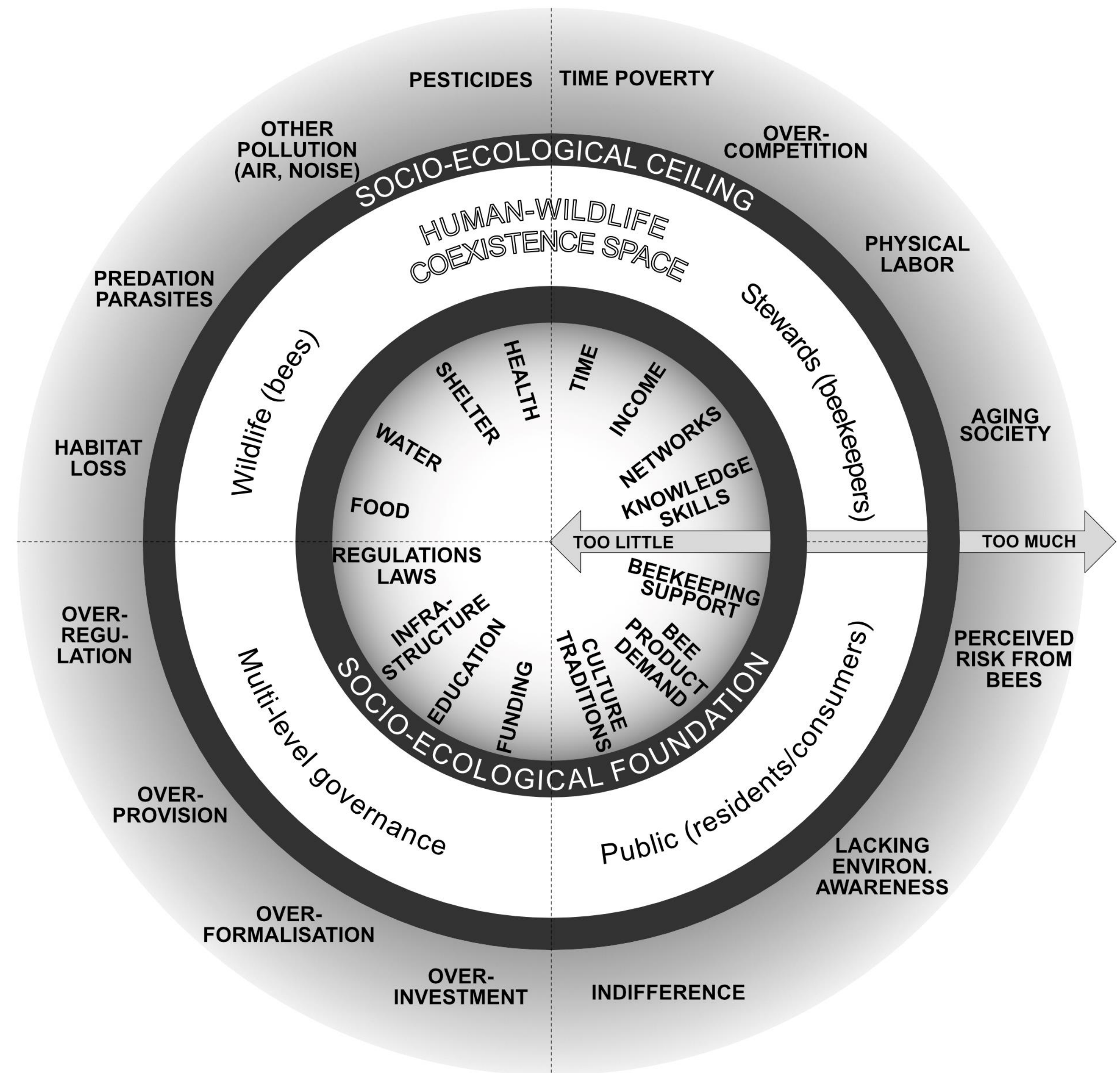
- Series of events, talks, workshops in collaboration with local government, NGOs, public figures, residents etc.
- Aim: outreach, co-development of policy, creation of momentum, identifying next actions and actors, integration with other policy issues
- Topics: bee hotline, beekeeper matching system, pesticide-free zones, urban greening, pollinator seed mix, environmental education



(Oda et.al. 2018)

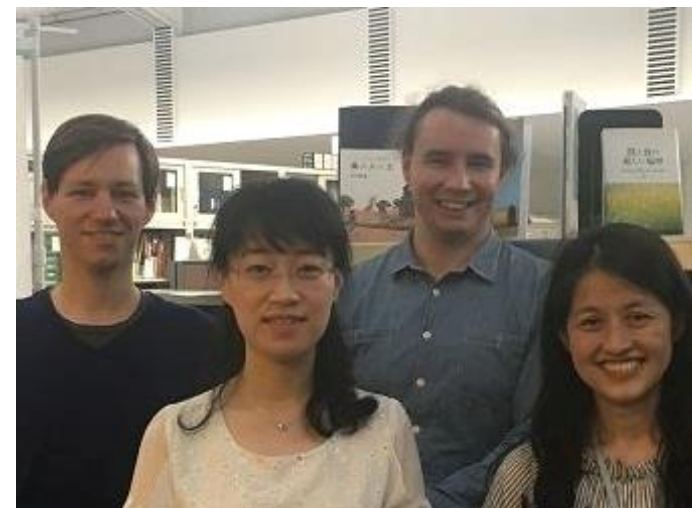
A human-wildlife co-existence framework

- Environmental management in dynamic socio-ecological systems: holistic co-management needed
- Wildlife, stewards, public, governance as key areas
- Inspired by doughnut economics: too much & too little both important
- Key in socio-ecological restoration? Links other nature-based livelihoods & stewardship work, “being with”



Reflecting on transdisciplinary research

2017



7月

Interviews
Beekeeper Experts
& Projects
in Kyoto & Nagano



11月

Beekeeper Survey
@38 summit

12月

Beek.Survey
@Nagano &
@nihon
38semi



1月

Beek.Survey
@bee science semi

2018



11月4日

Co-hosted
seminar
100 part.

8月3日

set up 2
hives at
RIHN



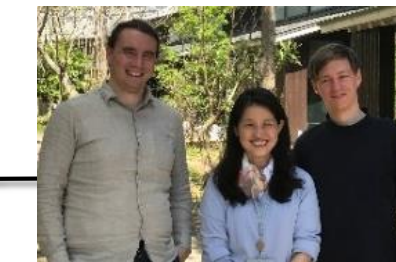
2 short films
- Martin
- Marute

7月



5月

Beek.Survey
@Miyazaki



3月

Beek.Survey
@Nagano

2019

2月27日

38 café



3月8日

実践へ



5月



Both hives
occupied!
Kozagawa
field work

8月

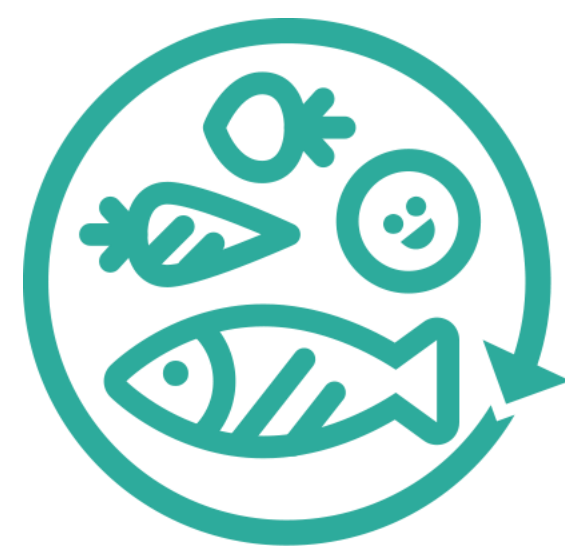
5yr. project
proposal

...a future with
bees!





Thank you!



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