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Hidden Threat or New Arrival?

Recent ALB Outbreaks in Switzerland

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Introduction & Background

- Asian long-horned beetle (*Anoplophora glabripennis*, ALB) native to Eastern Asia (China, Korean Peninsula)
- A significant invasive species with a complex invasion history in Europe

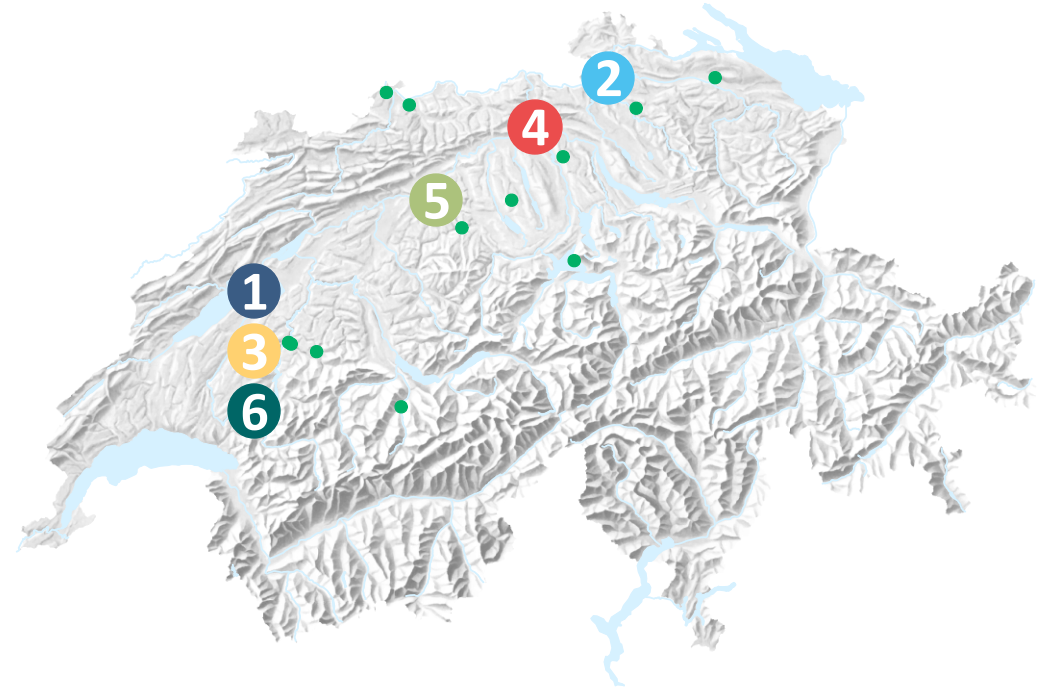


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ALB Outbreaks in Switzerland

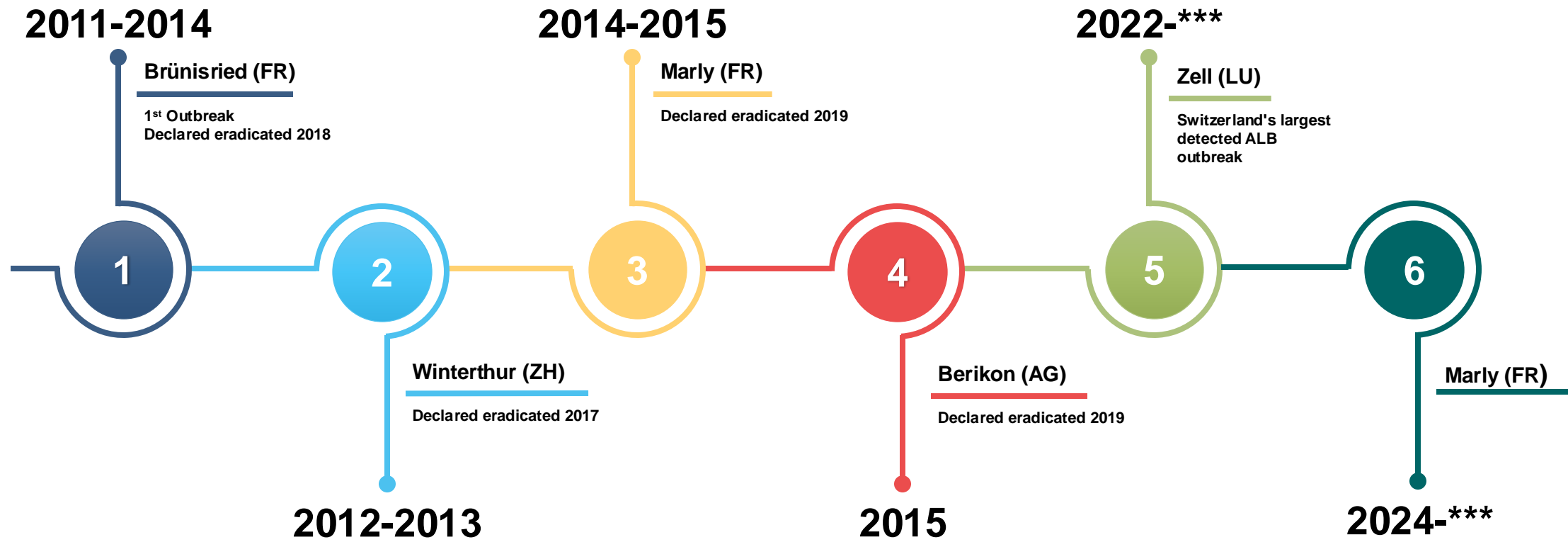
Importance of understanding outbreak origins

- 1st–4th outbreaks (prior cases)
- 5th outbreak (2022, largest outbreak)
- 6th outbreak (2024, old location)



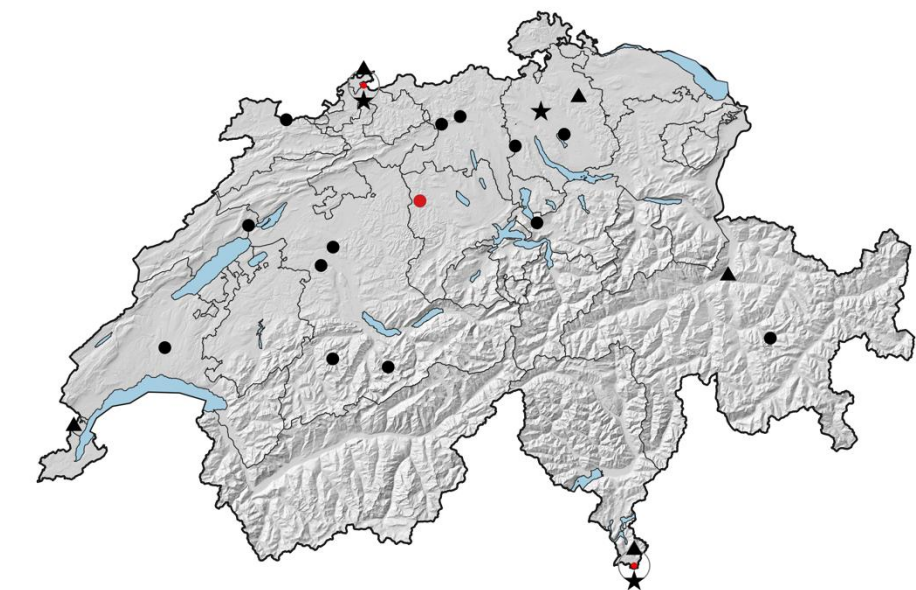
ALB Outbreaks in Switzerland

Importance of understanding outbreak origins



Surveillance activity

2022: Detection of outbreak 5



Reporting and additional monitoring

- Negativ
- Positiv

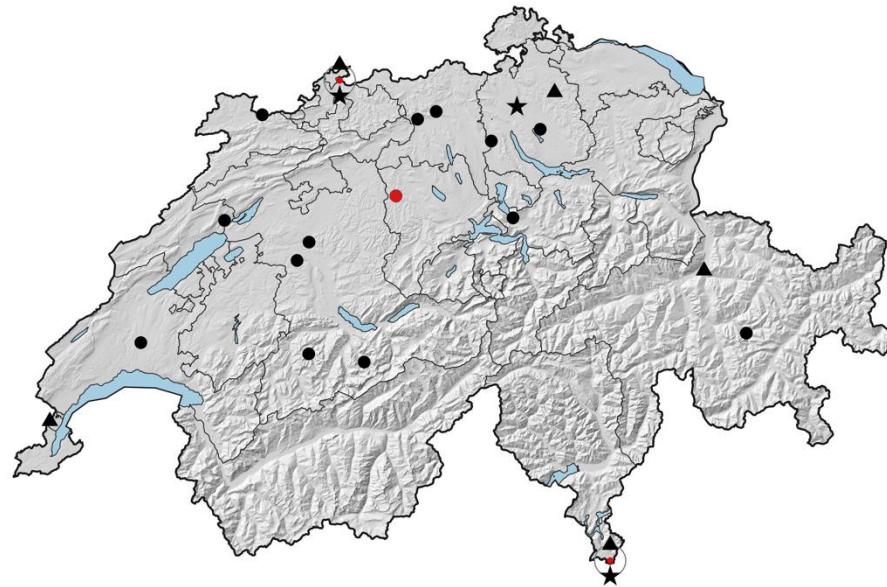
Territory surveillance

- Cantons
- Federal Plant Protection Service

| Territory surveillance | # | Diagnostics | # |
|------------------------|-----|---------------------------|----------------|
| Inspected areas | 8 | FPPS-ISPM15 | 2 |
| Inspected trees | 125 | Phytosanitary inspections | 0 |
| Funnel traps | 8 | Reporting | 22 (1 positiv) |

Surveillance activity

2022: Detection of outbreak 5

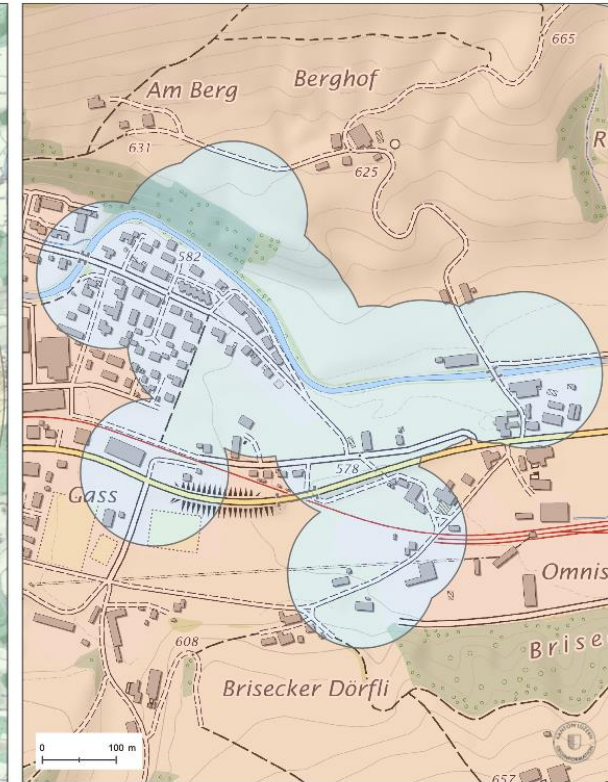
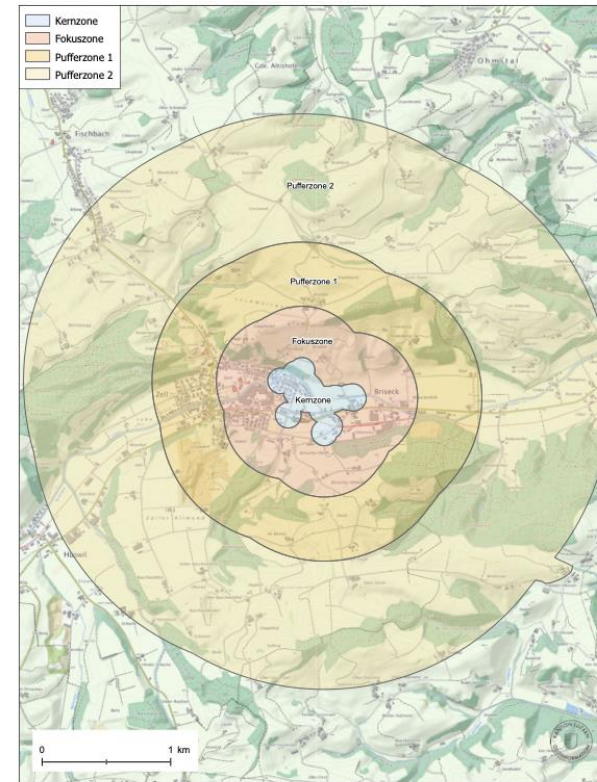


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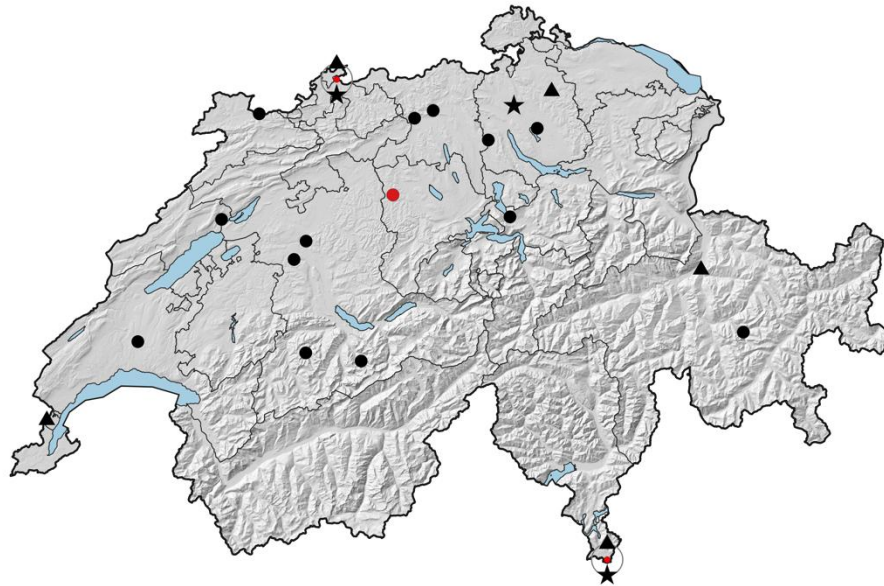
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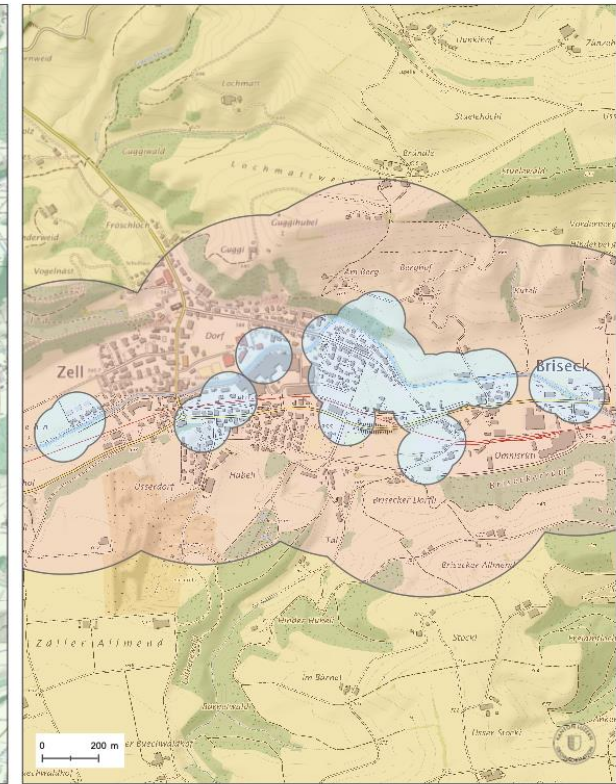
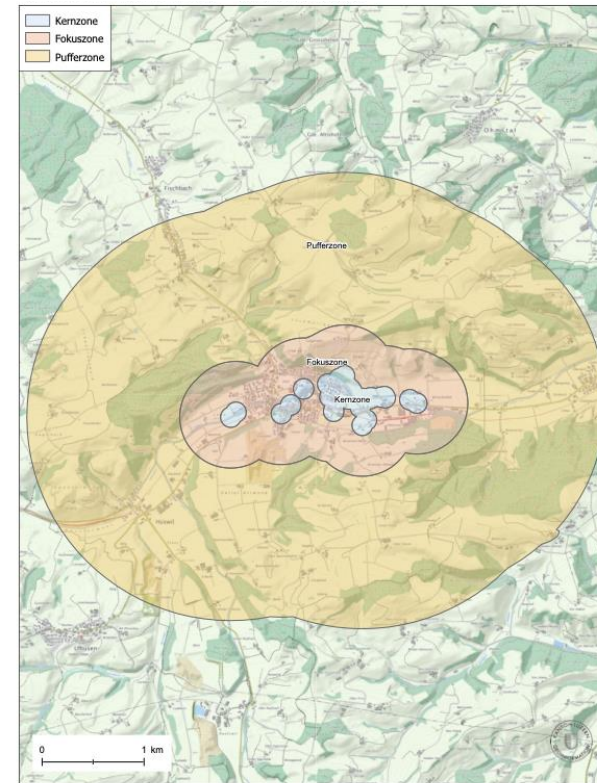


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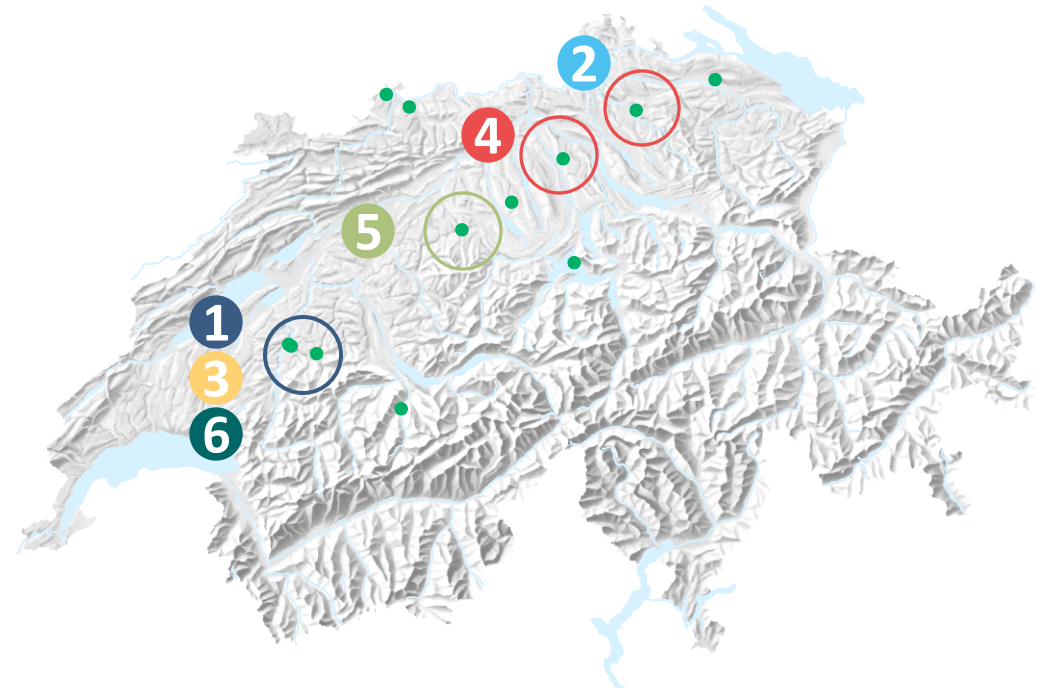
Methodic approach

- Confirmation by qPCR

- Haplotype

- ① ③ (2011-2015) share an identical haplotype (COX-D)
 - ⑥ (2024) outbreak shares haplotype with past cases (COX-D)
 - ⑤ (2022) shows a previously unreported haplotype

- Microsatellite Analysis



Methodic approach

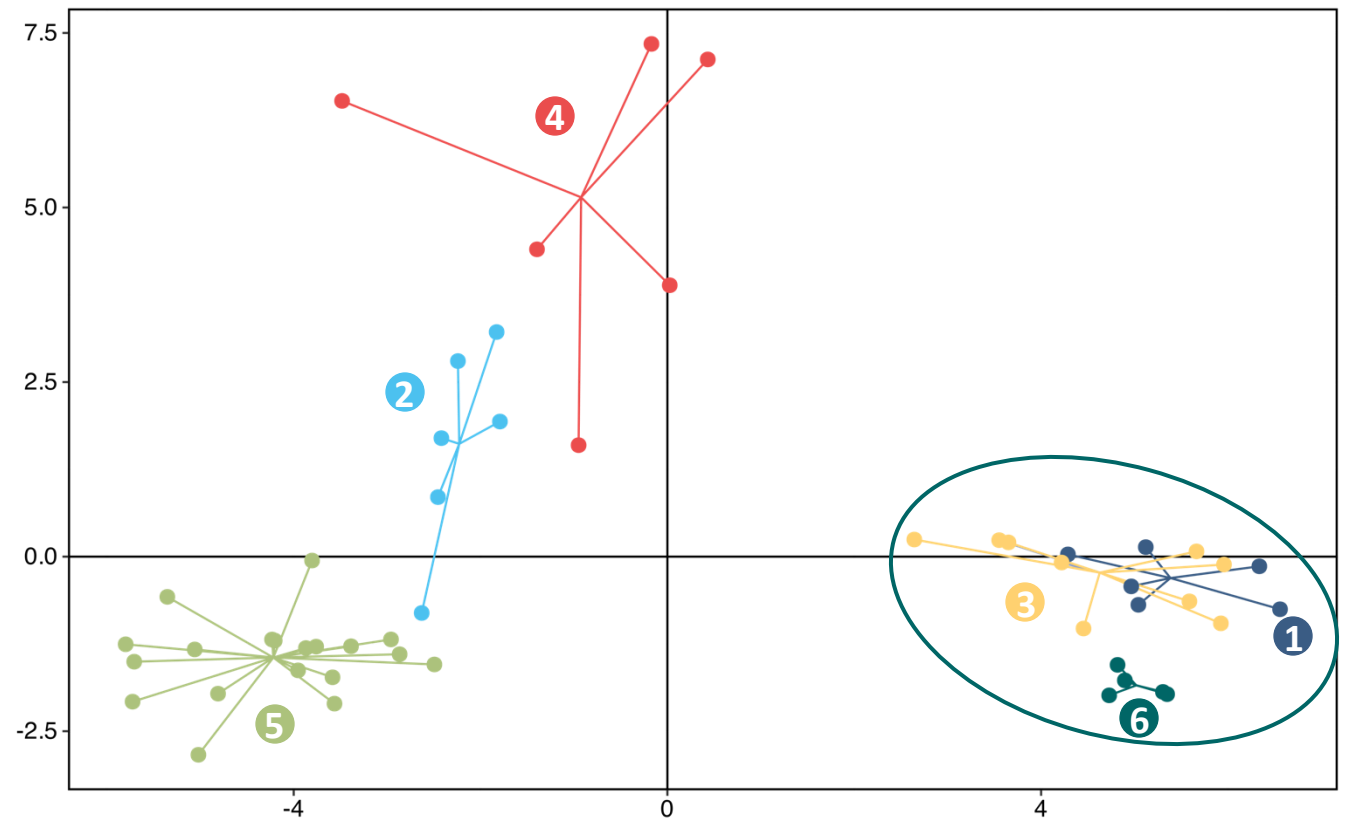
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14 x simple sequence repeats (SSRs) as DNA markers



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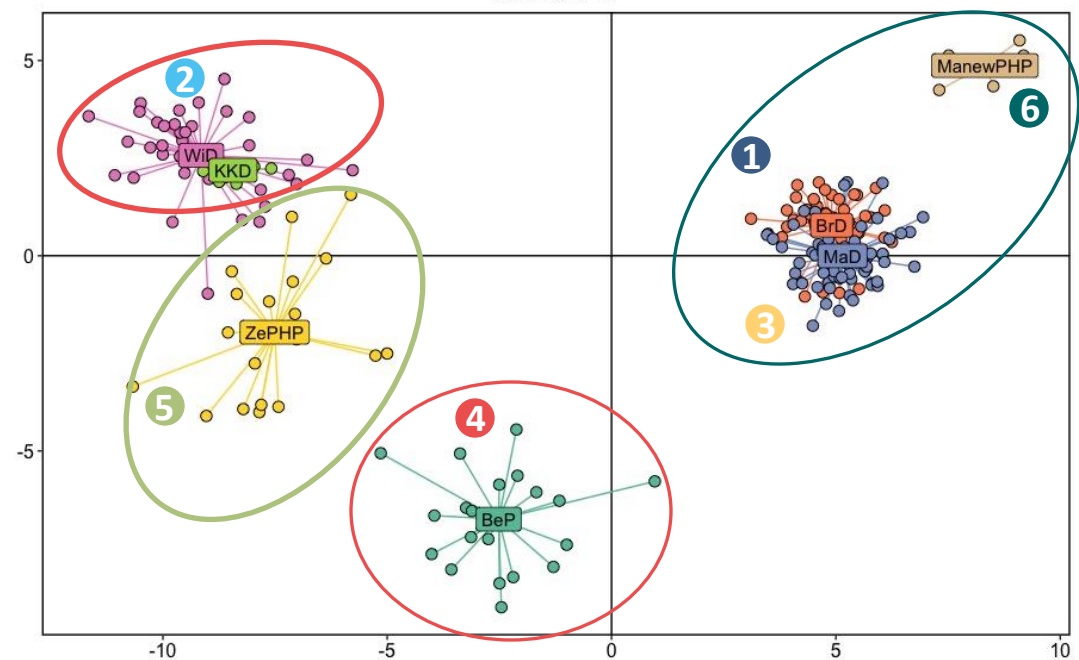
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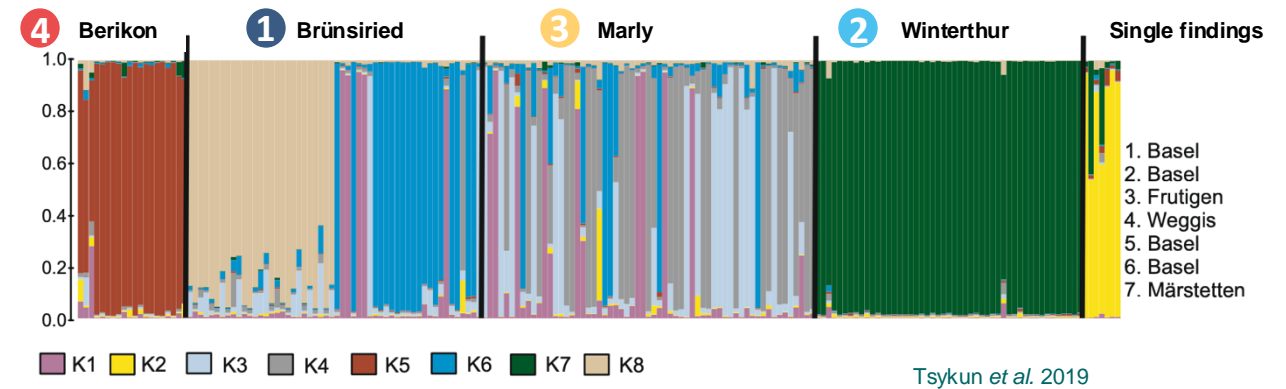
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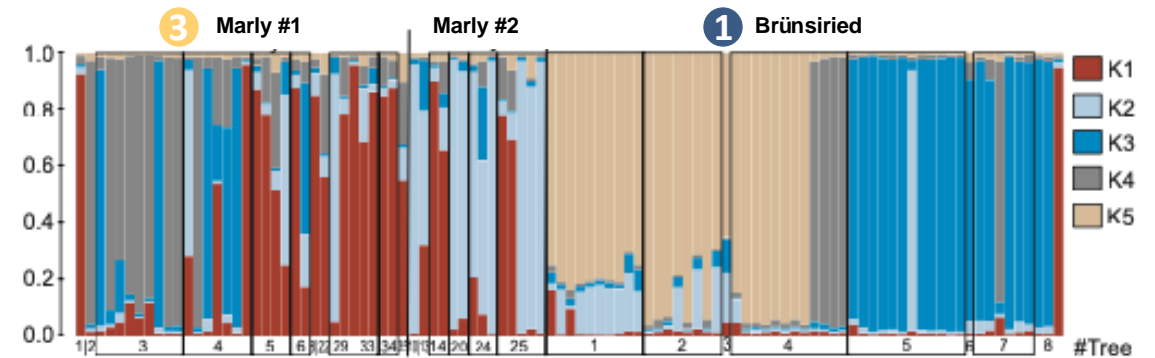
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Implications for management Strategies

- **Comparison of long-term undetected survival and new introductions**
- **Efficient allocation of resources (e.g., detection dogs)**
- **Adaptation of a long-term surveillance strategy**
- **Citizen awareness and participation in reporting remain important**