



Genetic diversity, geographic differentiation and
conservation measures of the Japanese firefly,
Luciola cruciata

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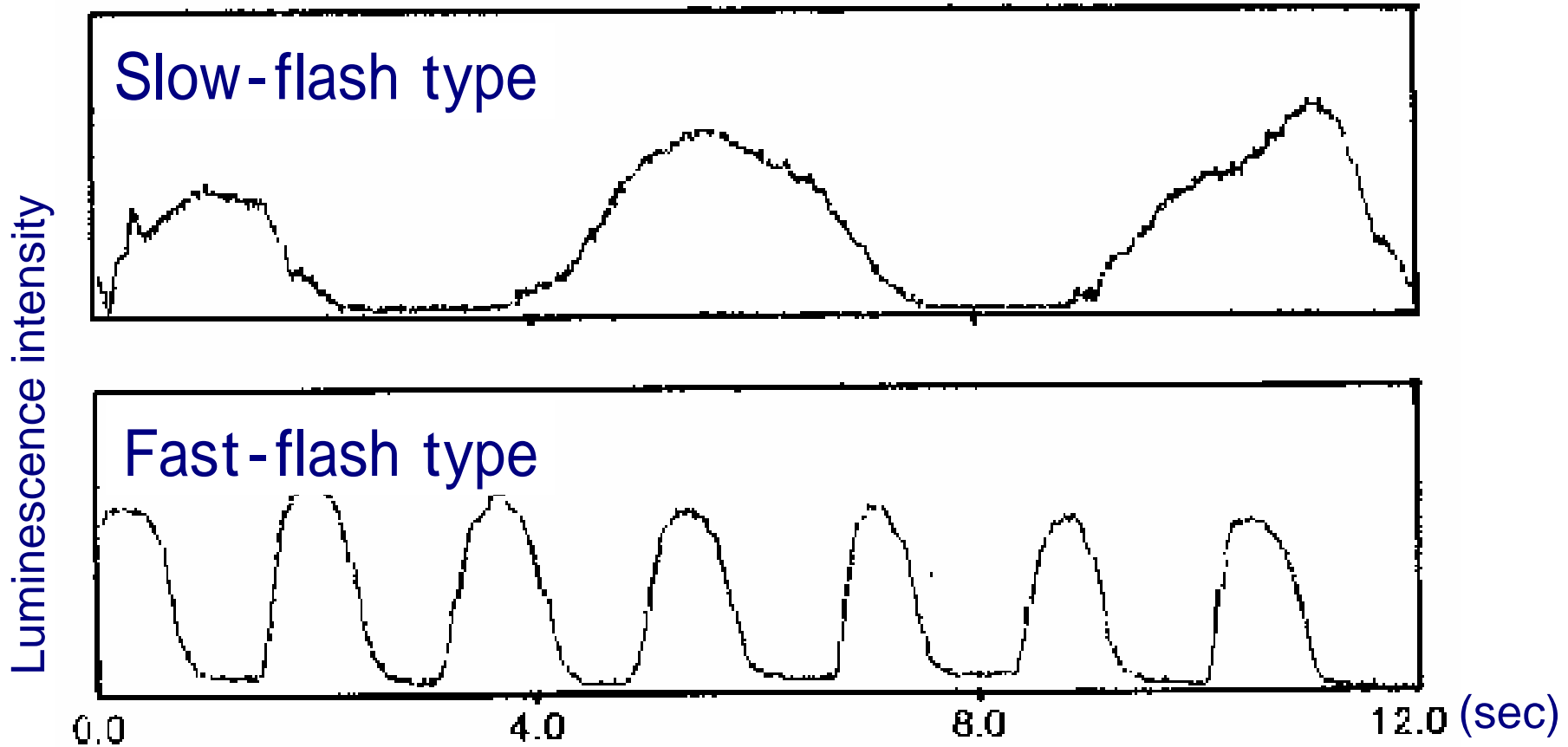
Background of this presentation

- ◆ Economic progress and environmental change
- ◆ Mass production of firefly and transplantation everywhere
- ◆ Nature conservation and reconstruction
- ◆ Biological diversity and endemism

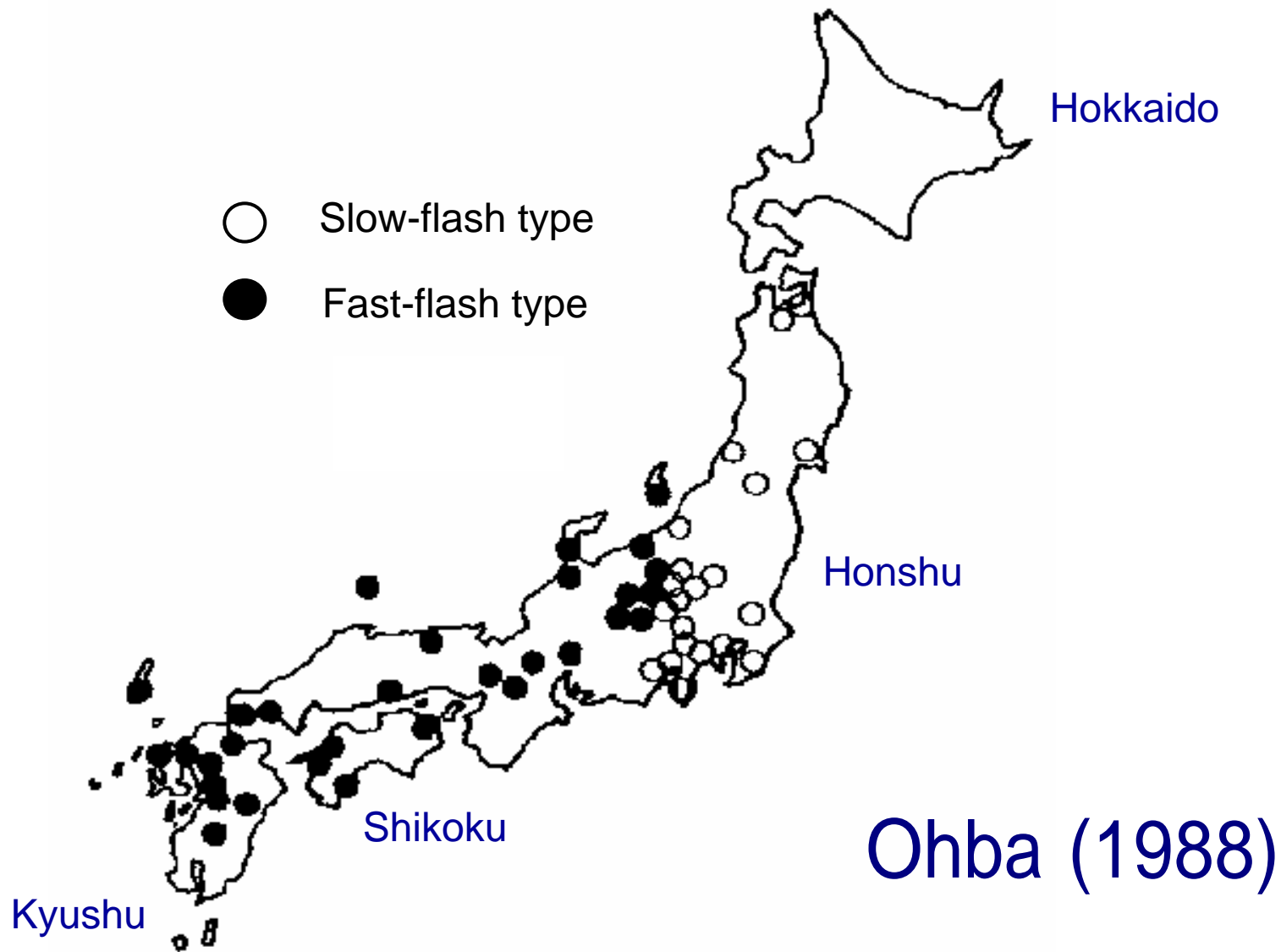
Japanese aquatic firefly, *Luciola cruciata*



Flash pattern of the two ecological types



Distribution pattern of the two types



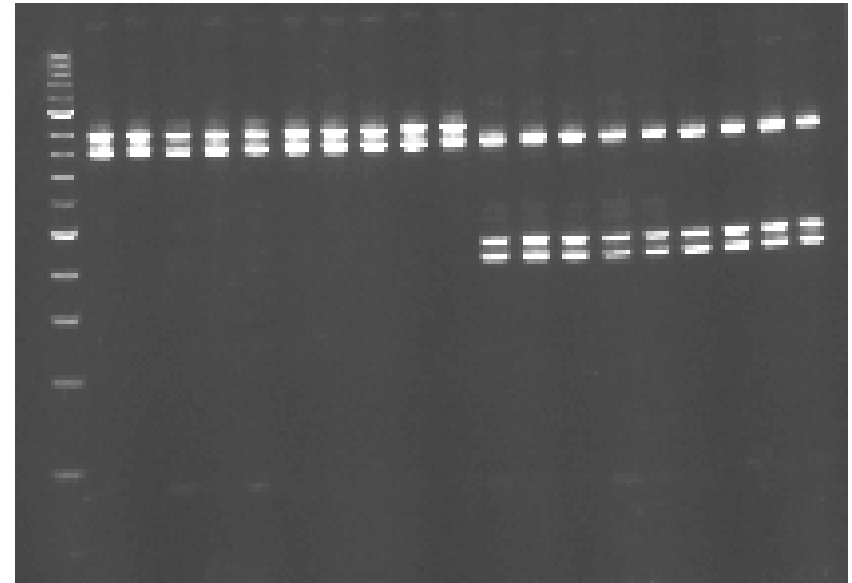
PCR/RFLP pattern in two populations

COII / *Hinf* I



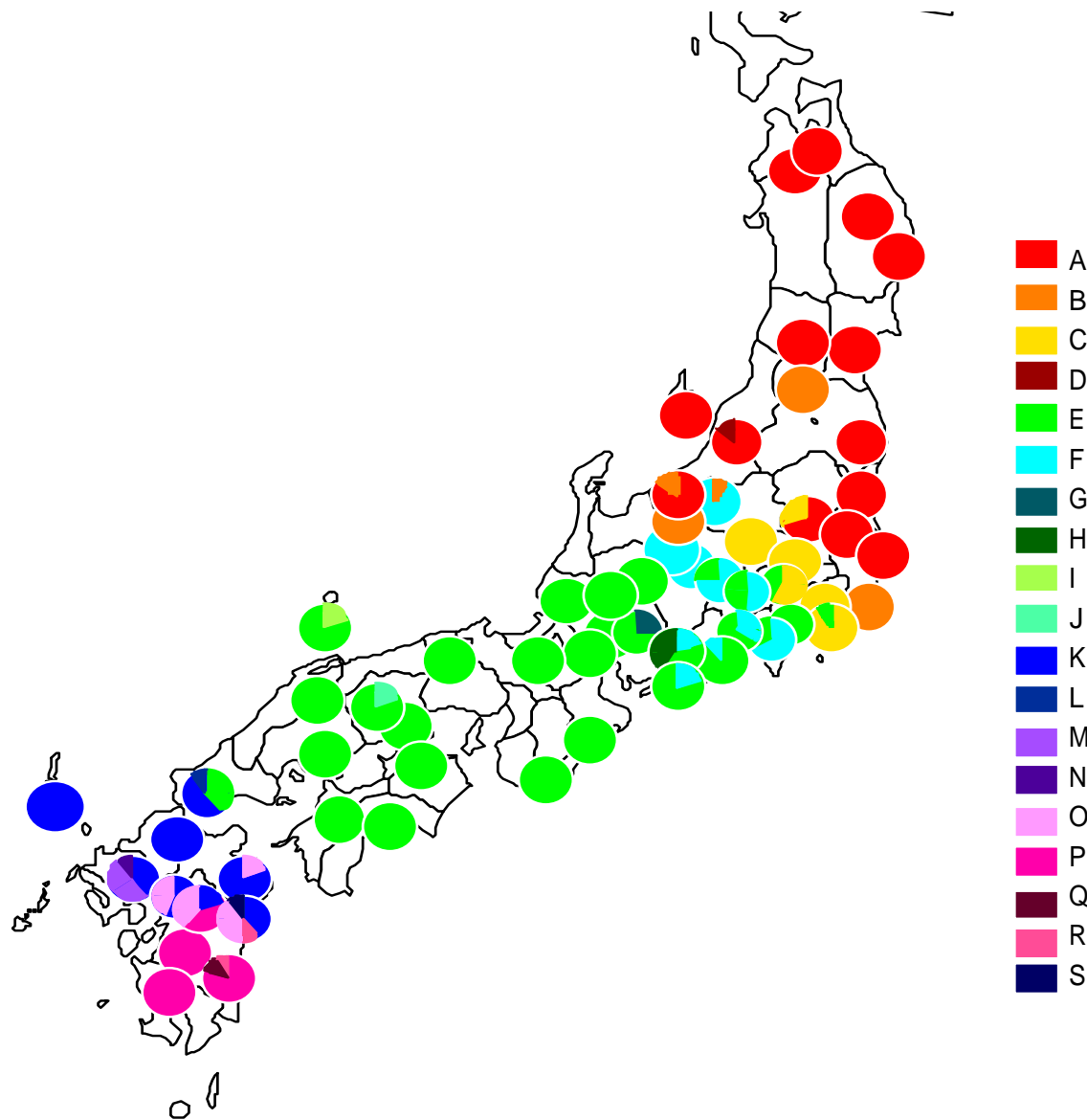
M | Aomori | Owase

COII / *Hae* III

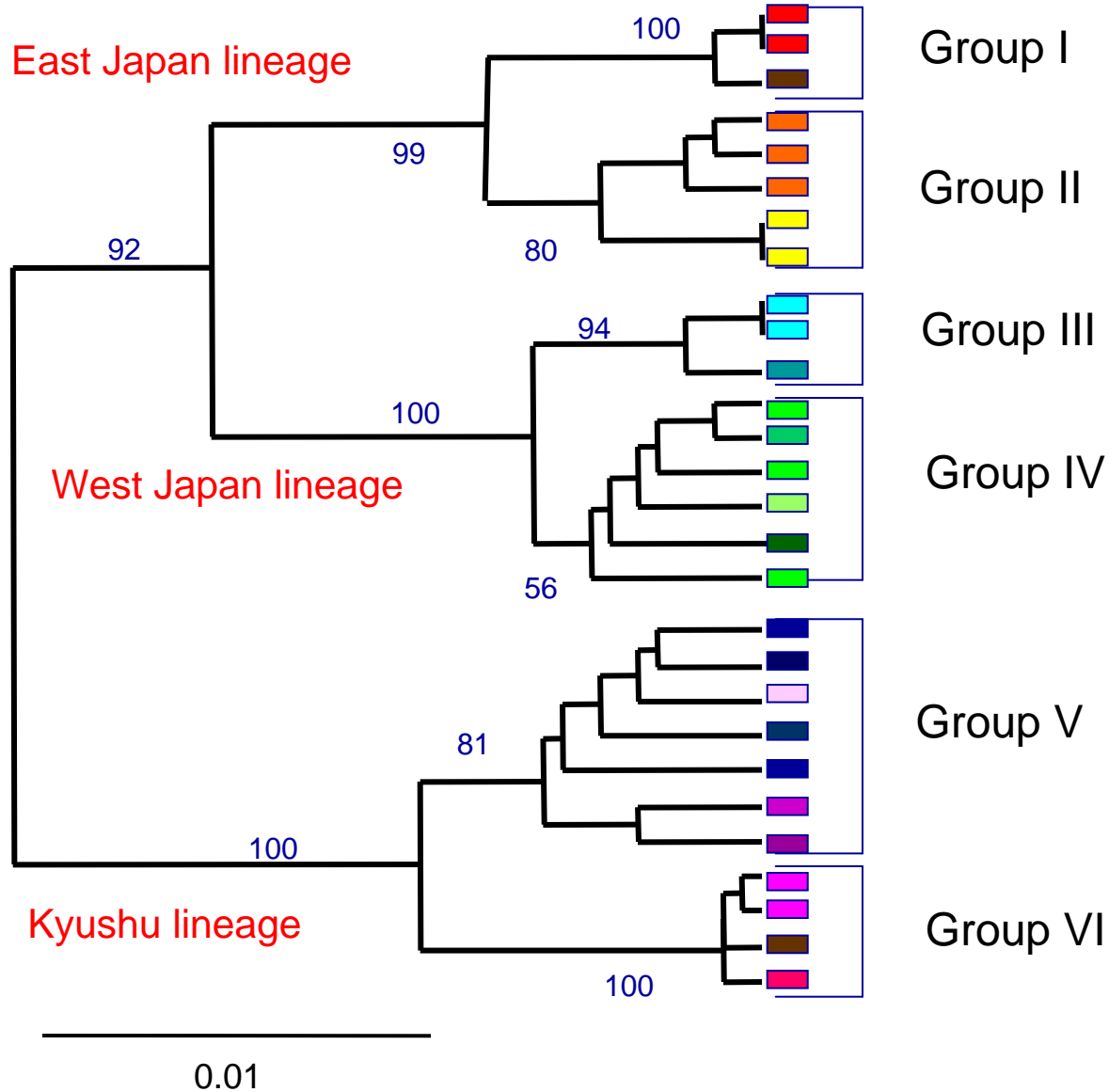


M | Amonori | Owase

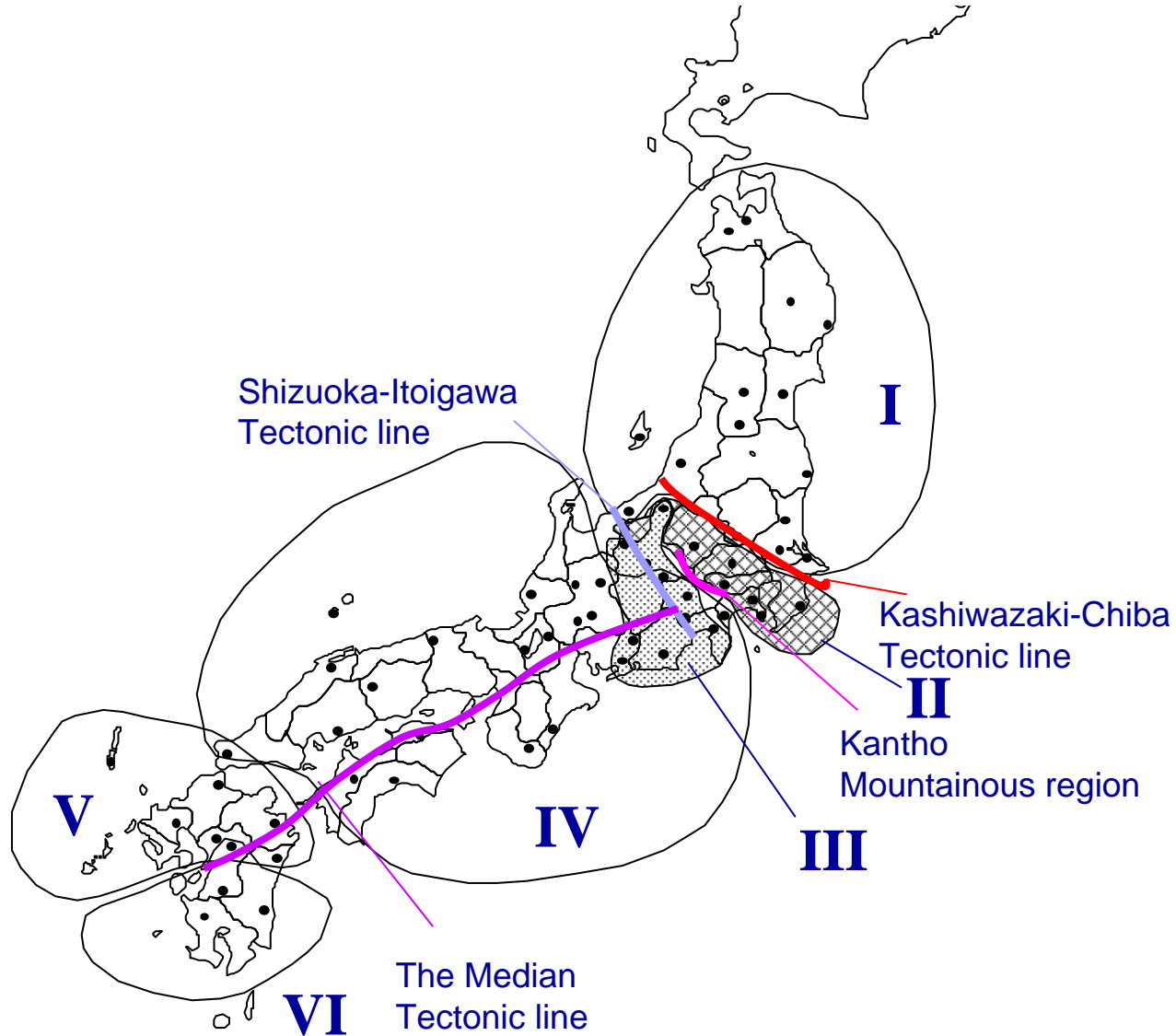
Distribution pattern of the CO II haplotypes



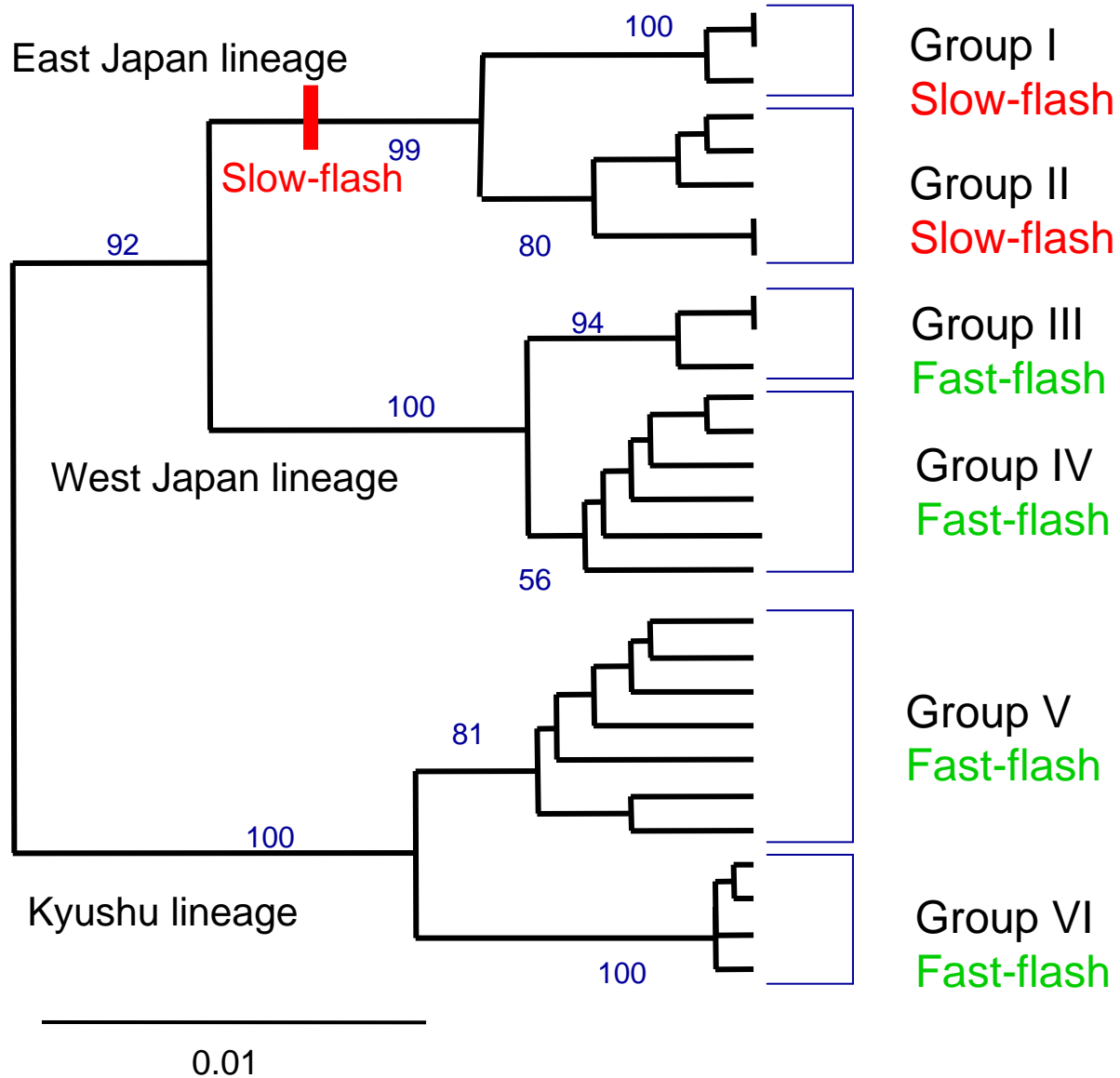
A phylogenetic tree of the CO II haplotypes



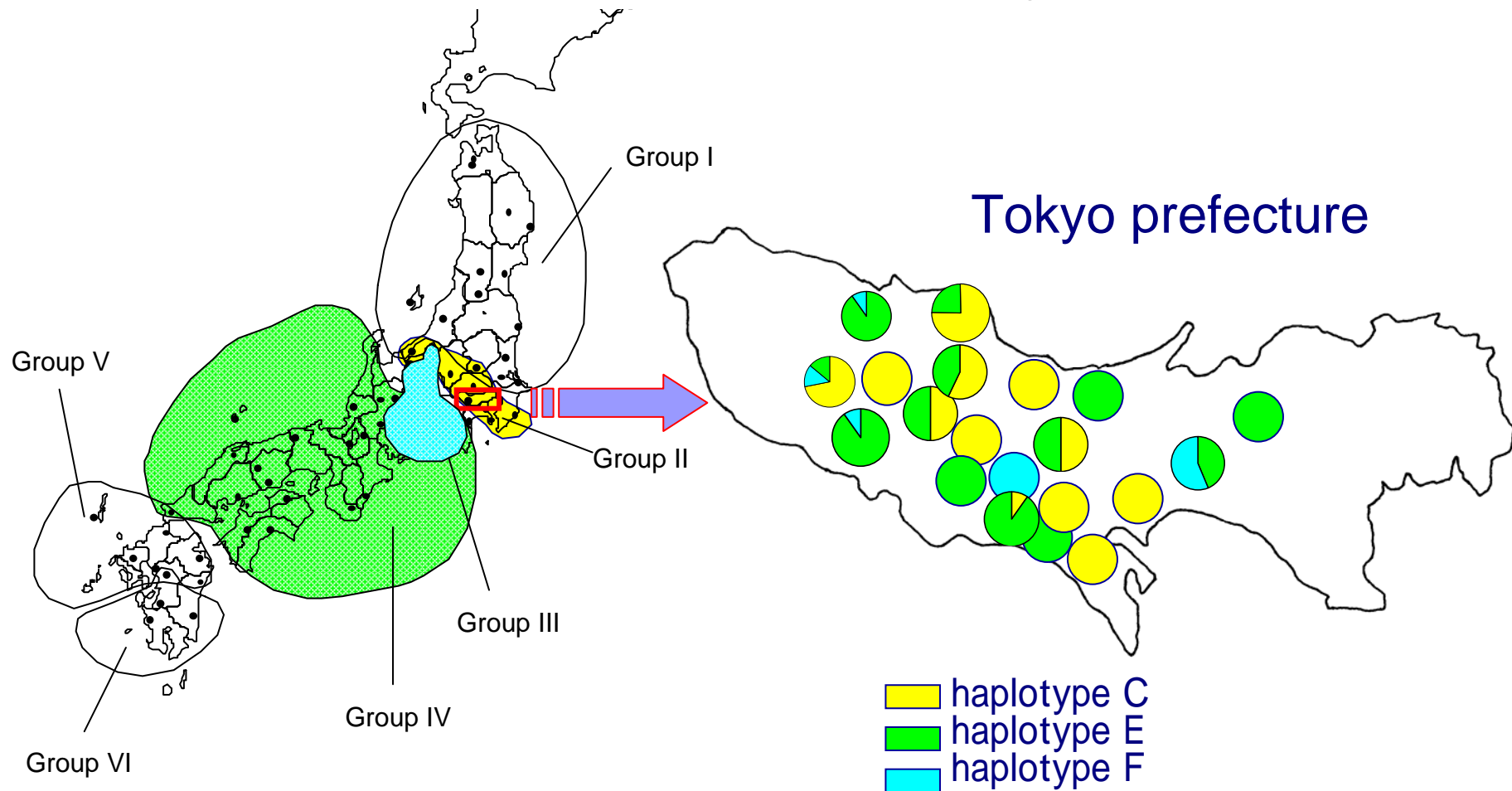
Distribution pattern of the CO II haplotype groups



Evolution of flashing two types in *L. cruciata*



Artificial disturbance of the haplotypes distribution of *L. cruciata* in Tokyo



Three major guidelines in transplantation of firefly

1. To forbid transplantation of fireflies from other places on the biogeographical standpoint.
2. To protect original colony before transplantation, even if transplantation is required.
3. If transplantation is required in the case of extinction of the original colony, fireflies from the nearest river system should be transplanted.



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