



The Characteristics of Breeding Bird Community in the Hae-an Catchment

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Presentation

- To show the characteristics of breeding bird communities at Hae-an Catchment.
- To suggest something relating with Ecosystem Service at Hae-an Catchment



Hae-an Catchment



(’09.5.31)



Warm-Temperate Forest Research Center 난대산림연구소



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Survey methods



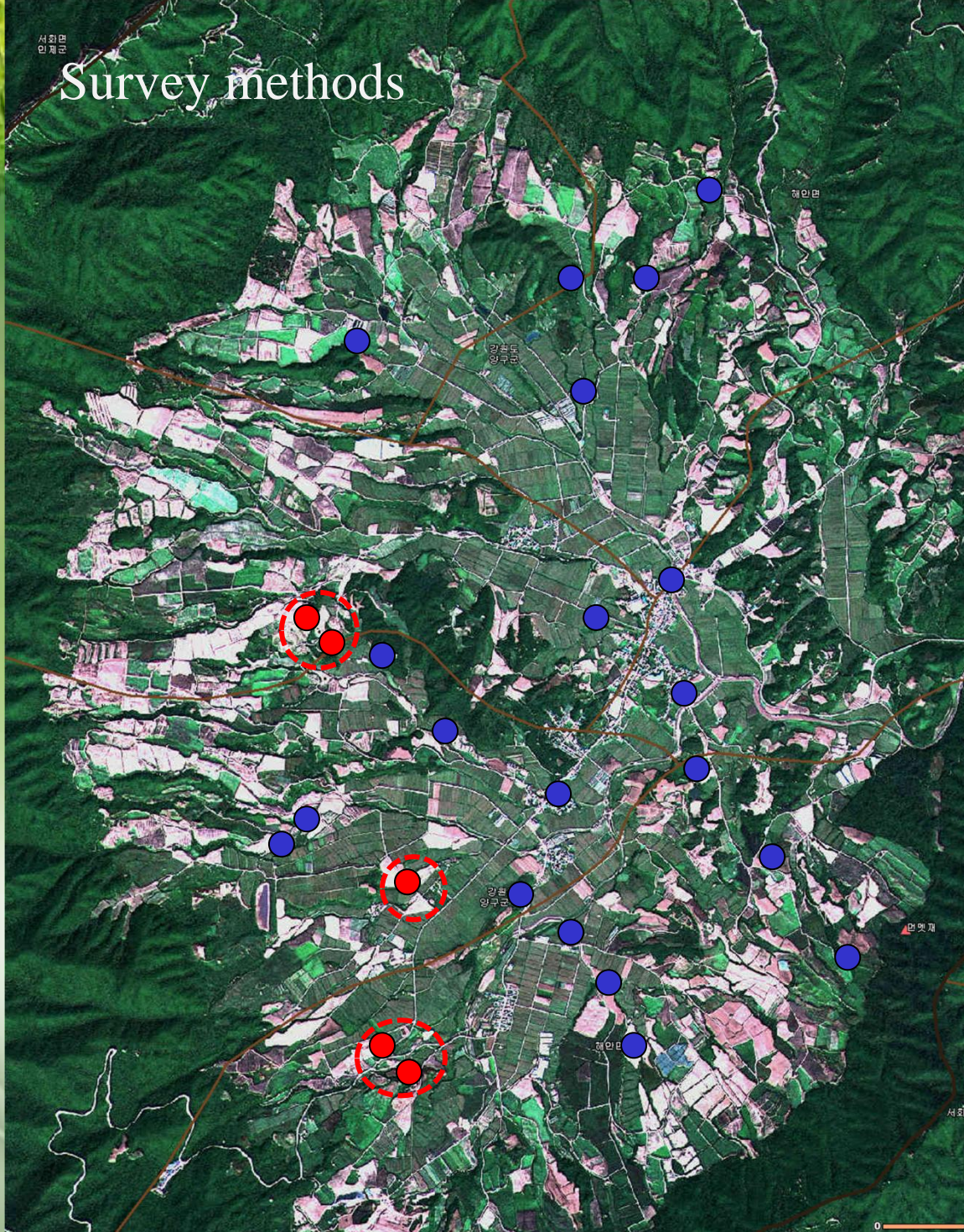
- Conventional
- Organic

Bird community

- Total: 25 points
- Point Counts 10min.
- more than 2 times
(Bibby et al. 1998)

Patch Use

- Observation point
- One sample: Flocks,
Simultaneous move
(Park et. al, 2007)



Nesting Guilds

Classification	Birds
House nesters(Ho)	Swallows 
Hole nesters(H)	Woodpeckers, Tits 
Canopy nesters(C)	Magpies 
Ground nesters(G)	Pheasants 
Bush nesters(B)	Shrikes
Not defined(*)	Cuckoos

-Modified from Lee and Park (1998), Park (2005).



Diverse Nests



[Bush nesters]



[Hole nesters]



[Canopy nesters_Magpies]



[Ground nesters_Pheasants]



[Canopy nesters_Thrushes]



Foraging Guilds

Classification	Birds
Large-sized predators(LSP)	Sparrowhawks
Small-sized predators(SSP)	Shrikes
Terrestrial insectivorous birds(TIV)	Woodpeckers, Tits
Granivorous birds(GV)	Doves, Buntings
Ground-foraging birds(GF)	Starlings, Thrushes
Omnivorous birds(OV)	Magpies
Aquatics foraging birds(AF)	Wagtails

-Modified from Lee and Park (1998), Park (2005).



Small-sized predators



Thick-billed Shrike (*Lanius tigrinus*)



Brown Shrike (*Lanius cristatus*)



(Riparian forest, '09.6.23, ©Park CR)



Ground-foraging Birds



Hoopoe (*Upupa epops*)

(Near organic field, '09.6.22, ©Park CR)



Aquatics foraging Birds



Intermediate Egret (*Egretta intermedia*)



Yellow Wagtail (*Motacilla cinerea*)



(Near Paddies, '09.6.22, ©Park CR)



19 Patches

<i>Land cover</i>	<i>Acronyms</i>	<i>Classifications</i>	<i>Land cover</i>	<i>Acronyms</i>	<i>Classifications</i>
<i>Fields</i>	BF	Bean Field	Forests	DF	Deciduous forests
	DRF	Dry field		PF	Pine forests
	CAF	Cabbage field		RF	Riparian Forests
	CDF	Corn field	Streams	STR	Stream
	GF	Ginseng Field	Maeuls	PR	Paved Road
	RAF	Radish Field		ST	Street Tree
	PDF	Pepper field		HO	House
	POF	Potato Field	Others	EL	Electric line
Paddies	PAF	Paddy field		Sky	Sky
	BK	Bank of paddy and dry-field			



Forest

Riparian Forest

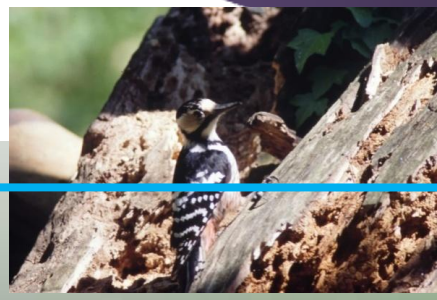
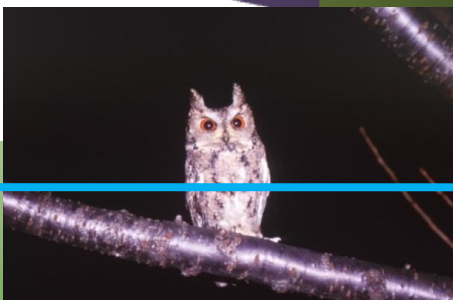
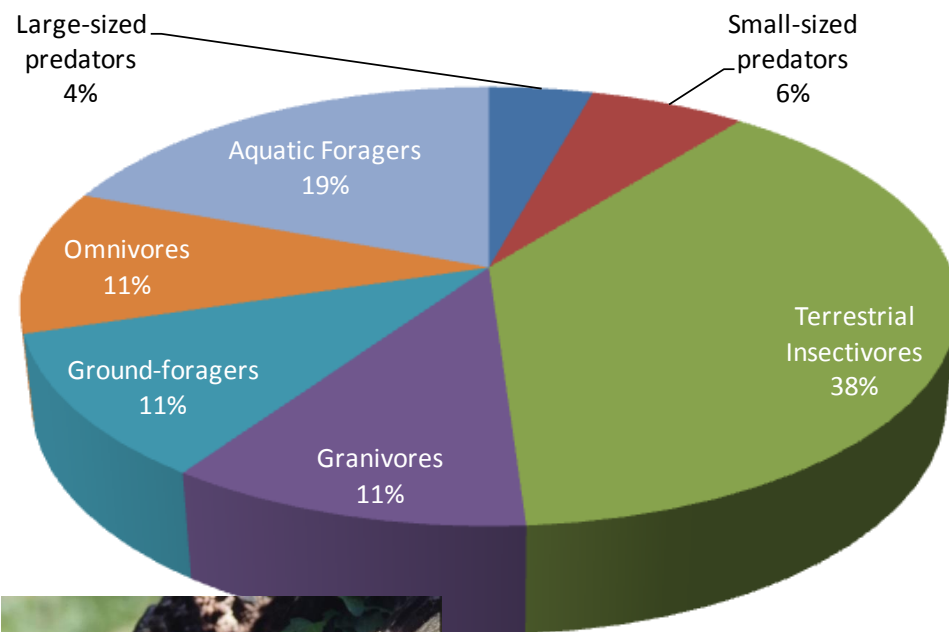
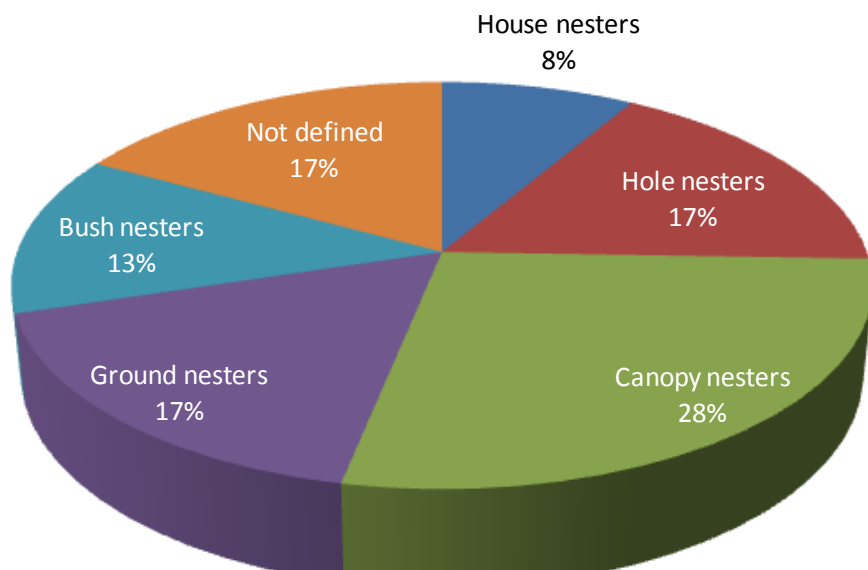


Breeding Bird Communities

The Characteristics of Agricultural lands or Grassland areas

Nesting; Canopy>Ground=Hole>Bush

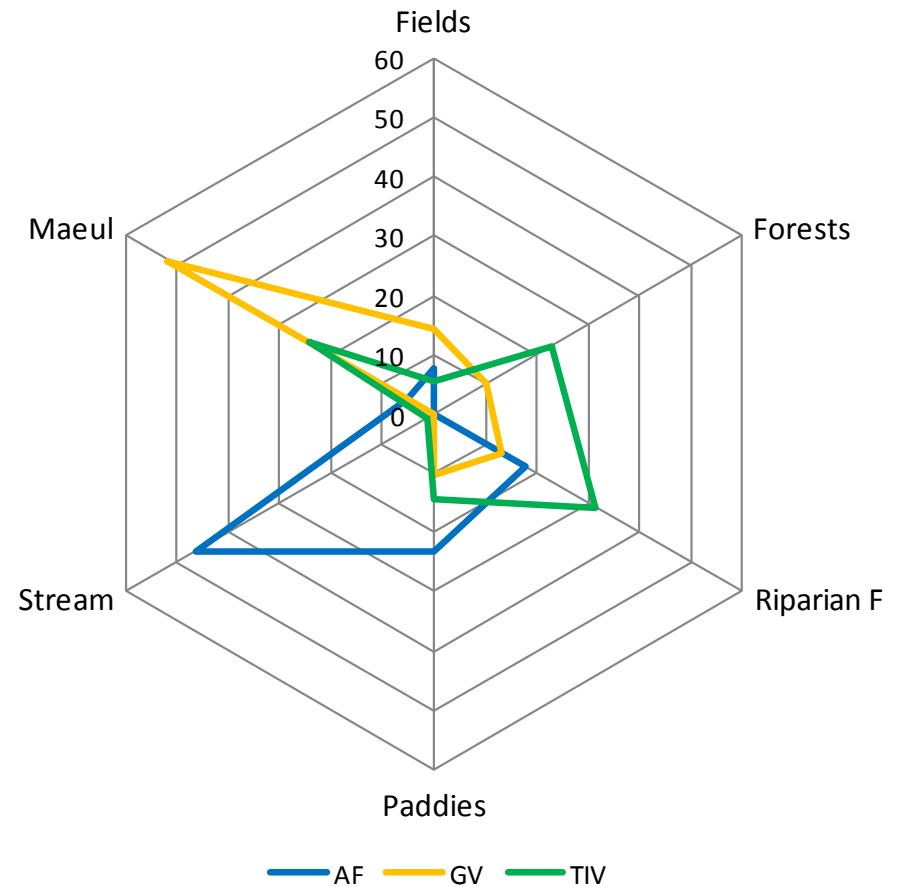
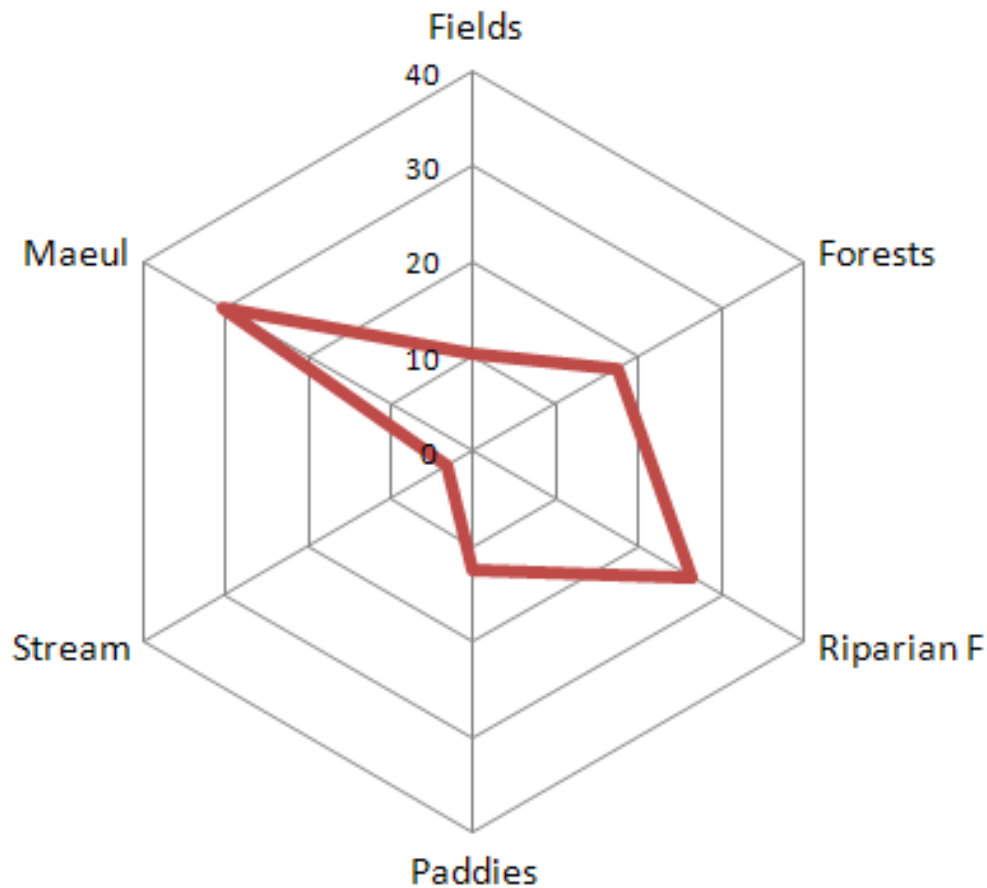
Foraging; Terr>Aquatic>Ground, Grani-



(Park et al. 2006)

Patch use by breeding Birds

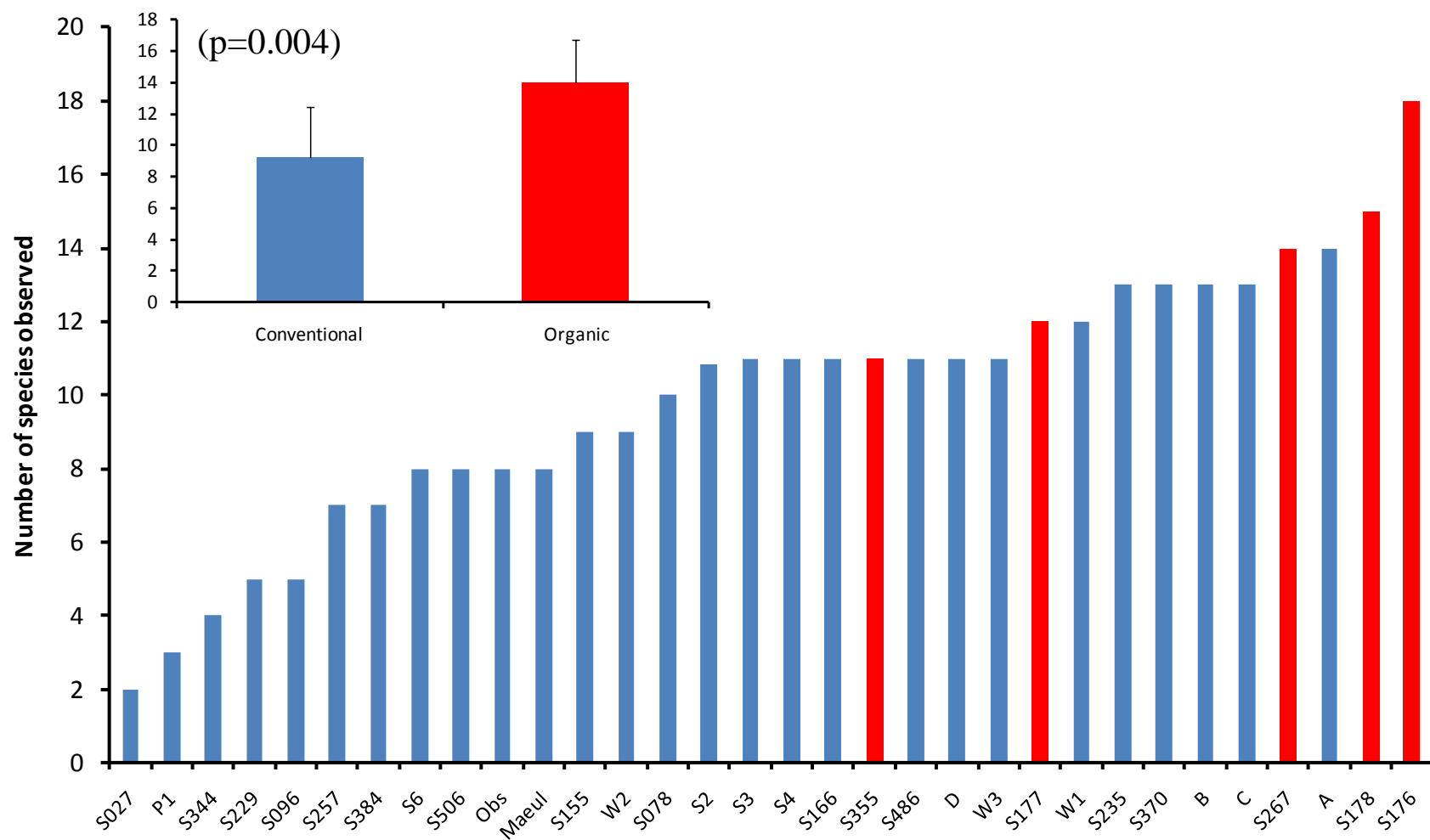
-All birds: Maeul(residential areas), Riparian Forests, Forests





Breeding birds at each points

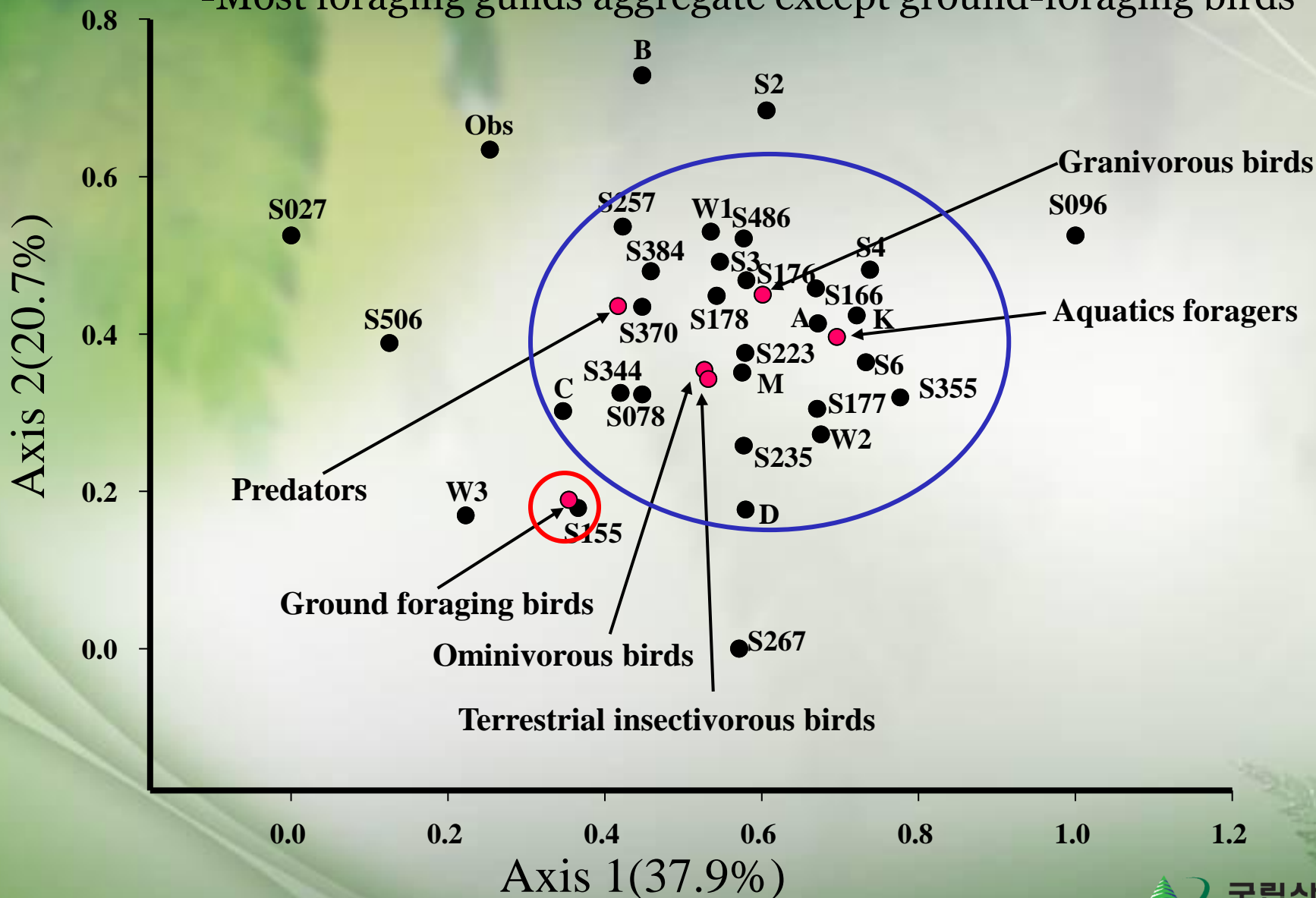
-Significant number of birds at organic points





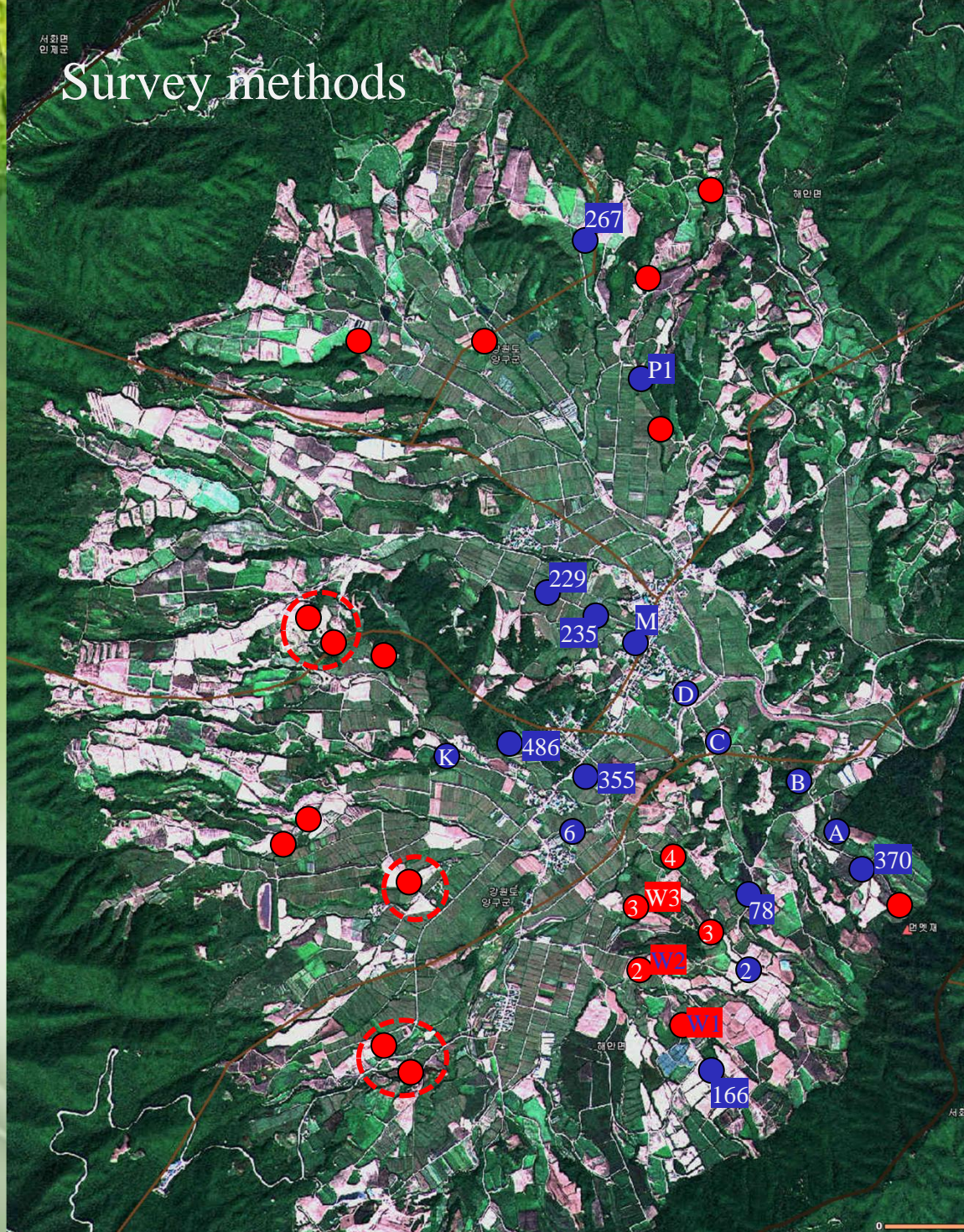
Cluster Analysis of Survey Areas by foraging guilds

-Most foraging guilds aggregate except ground-foraging birds





Survey methods



● Group A

Residential Area

● Group B

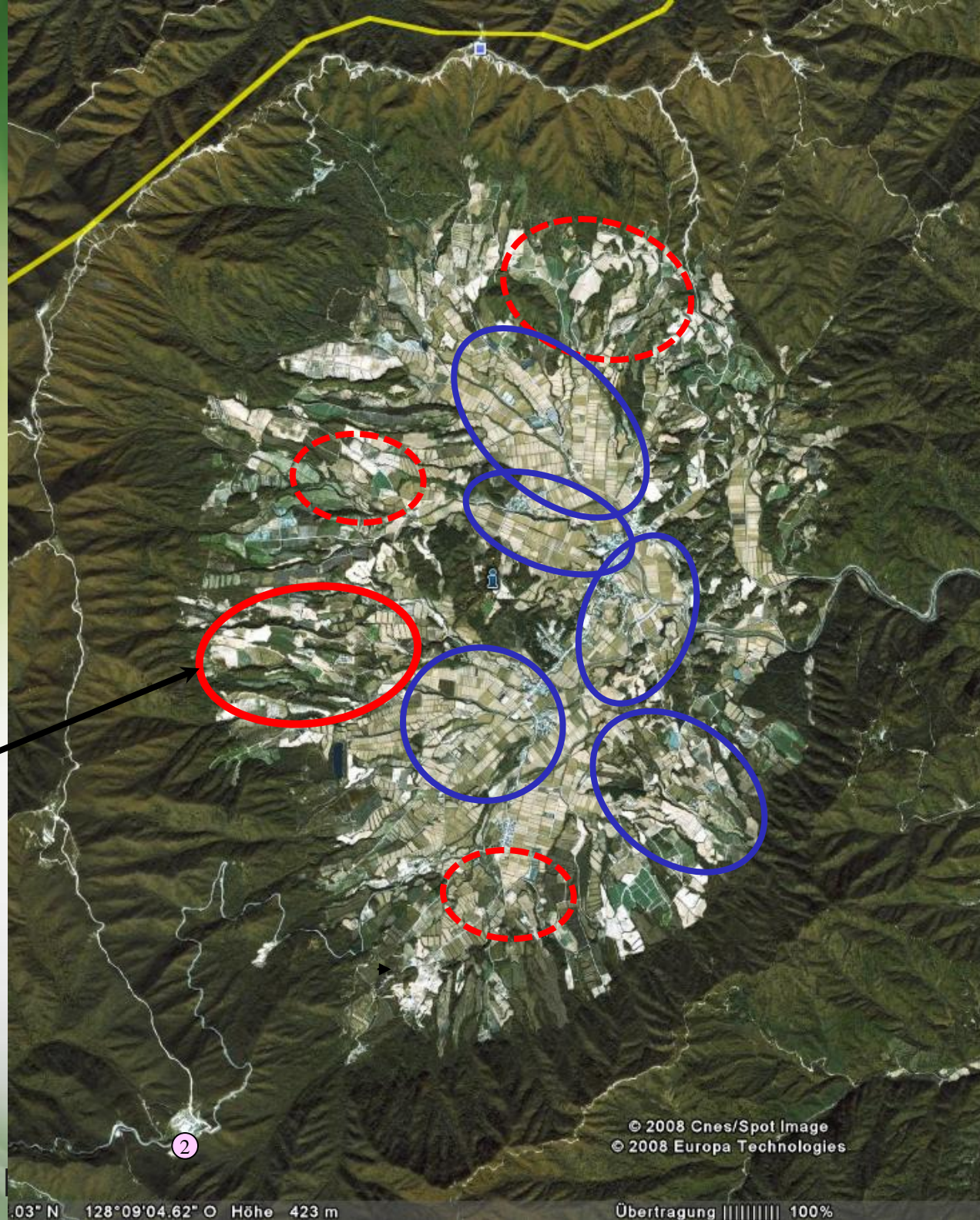
Riparian Forests

-Deciduous forest

-Streams



**Ground foraging birds
near organic points**



© 2008 Cnes/Spot Image
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03° N 128°09'04.62" O Höhe 423 m

Übertragung ||||| 100%



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Additional Analysis

- The Paddy Bank : Breeding for Stonechats



Stonechat (*Saxicola torquata*)



The Nest of Stonechat at Banks







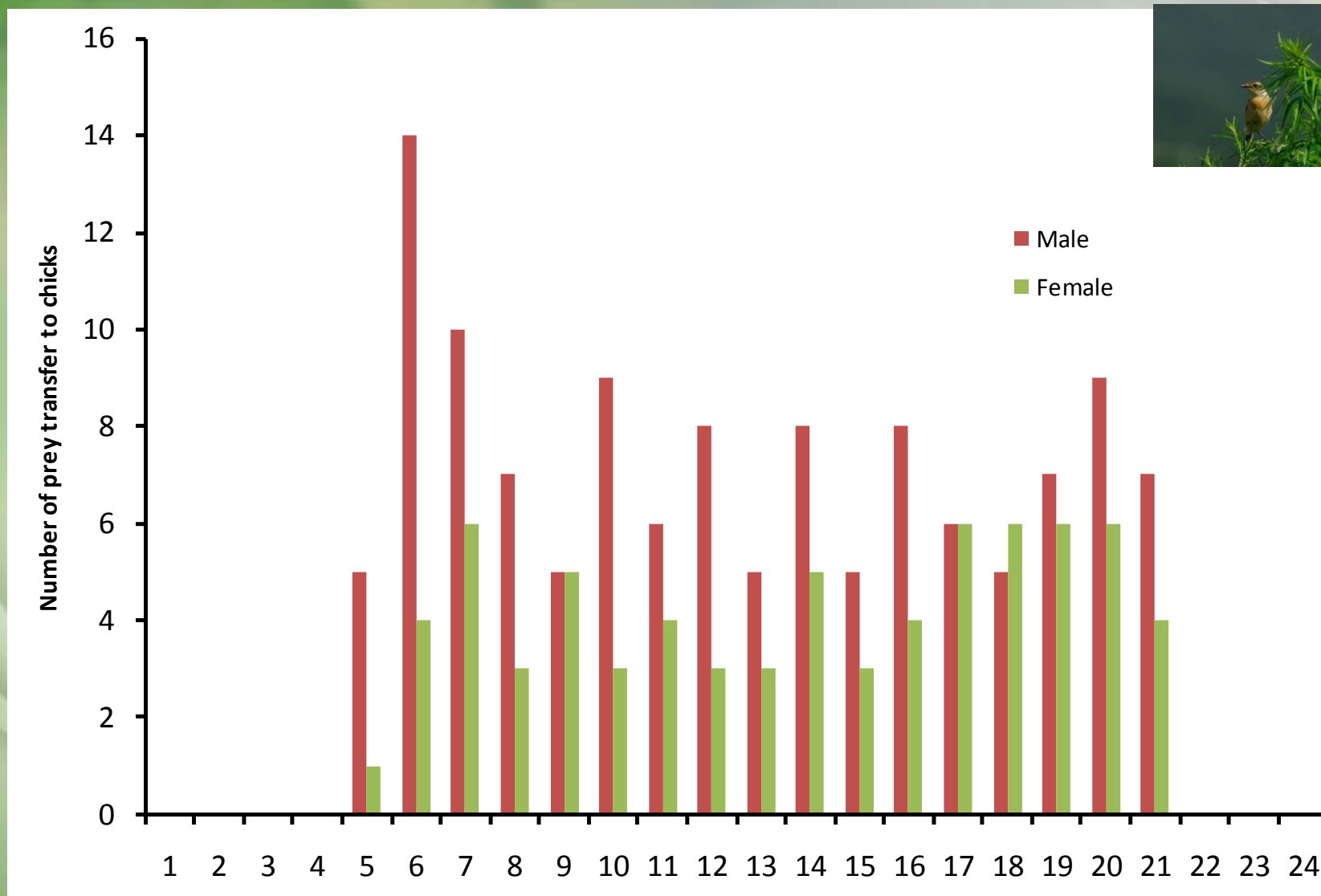
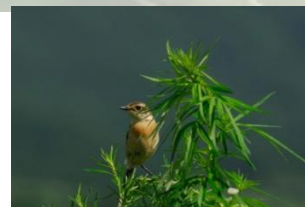
Video Analysis: Difference of Prey Transfer between Sex



Stonechat (*Saxicola torquata*)



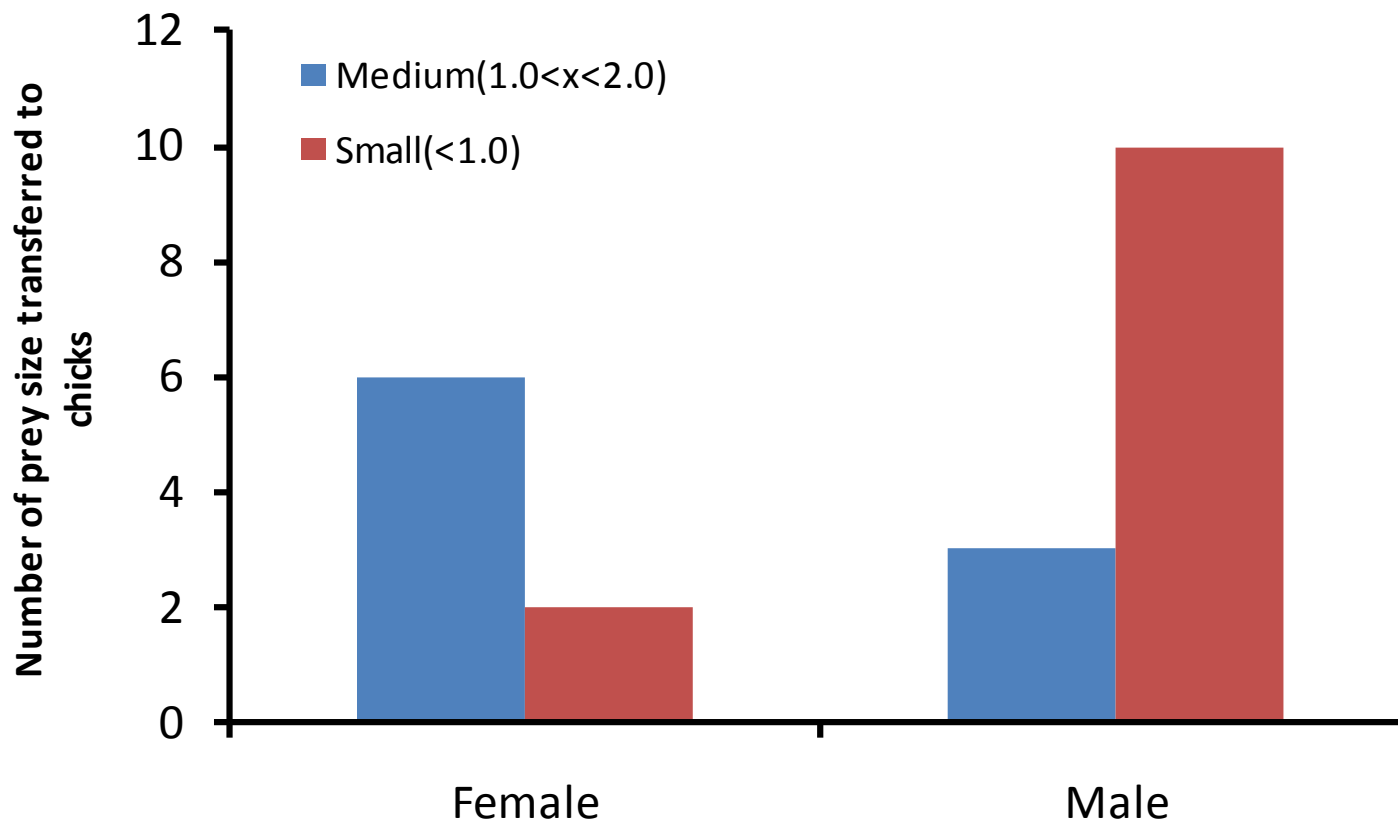
Male transferred more preys to chicks than female did





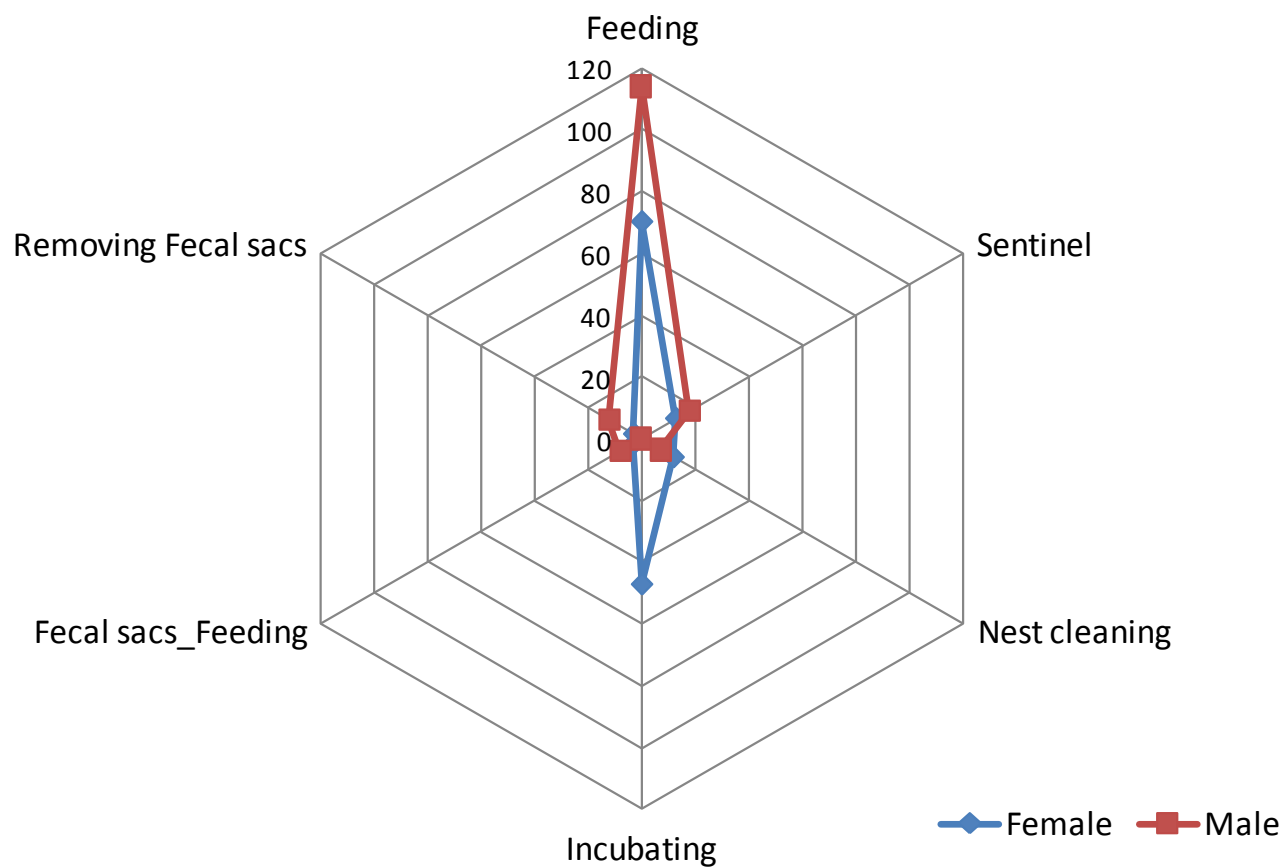
However, male transferred small-sized preys to chicks than female did

- The Role of Male: Sentinel calling (Hollen et al. 2008, Current Biology)
- Defense against predators by males





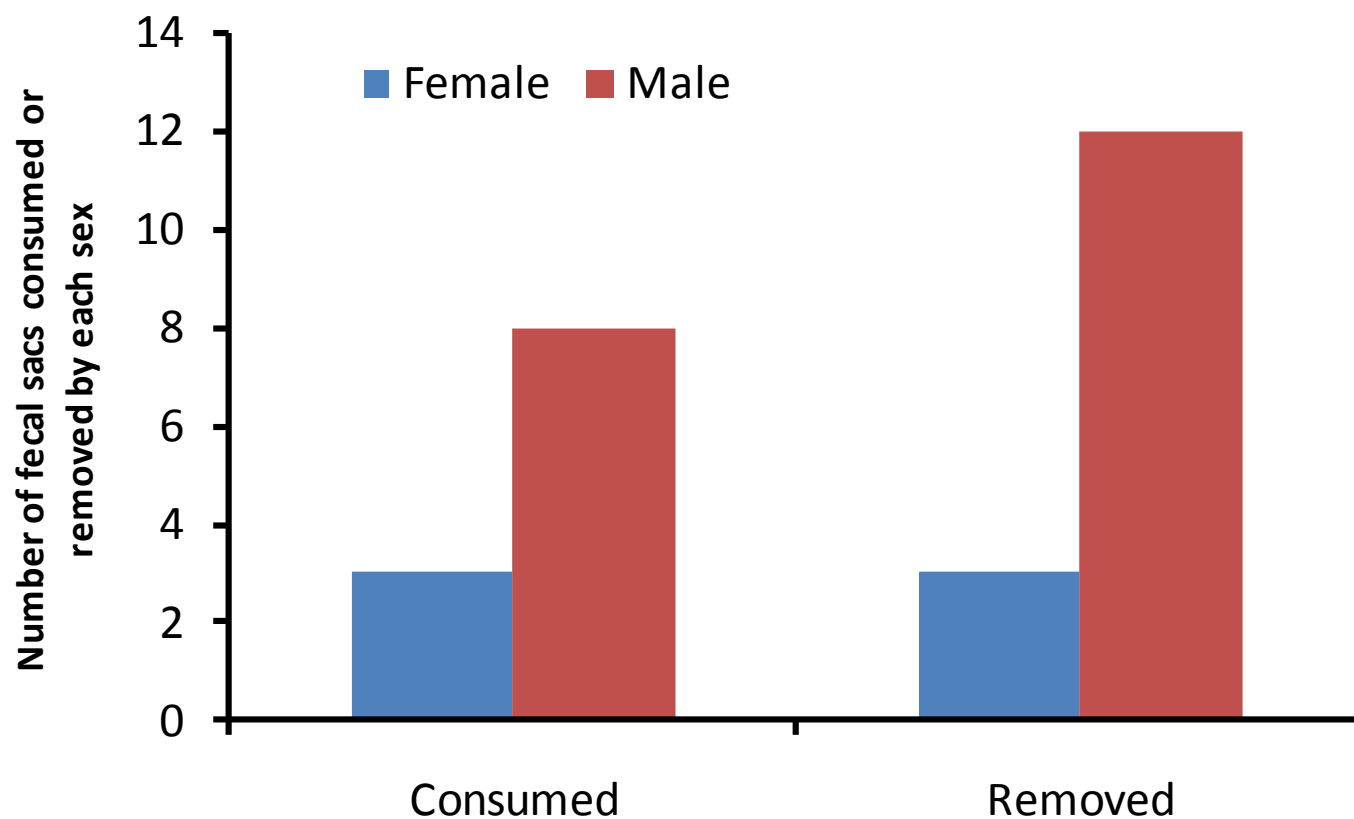
Male more spent time on sentinel behavior and relating with fecal sacs





Male more consumed fecal sacs than female did

- Coprophagy: 1) Eating is cheaper than removing,
- 2) Providing nutritional benefit
- 3) Water conservation in parents



- Nest predation risk
: Crows, Shrikes
- Essential nutrients
(carotenoid pigments) of
Vulture from the excrement
of ungulates (Negro et al,
Nature 416:807-808)
- Farmer's clipping of banks?



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Importance of Bank for Biodiversity

- Is it possible for farmers to clip banks after stonechats' breeding?



The Effect of Tits on the Control of Harmful Insects



⇒ One Nest box : 320 Euro /Year

- One individual of tits do consume about 85,000-100,000 insects per one year





Ecosystem Services

- Harmful insects control by birds
 - One swallow: 15 Euro
- Wildlife Damage by Wild boars



15 Euro Effect of Harmful Insects' Control





Conclusions

- Ground foragers showed aggregate patterns at organic farming points.
- Canopy nesters dominate study areas.
- Birds frequently utilized patches of MAEUL (village) and riparian forests.
- In 2010, we will focus on video-recording of Stonechats and Shrikes.



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Thank you for your attention