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## GREEN CORRIDOR PROJECT: MEETING GLOBAL CONSERVATION TARGETS IN A PRODUCTIVE LANDSCAPE PROJECT



## ASSESSMENT OF THE FISH FAUNA OF THE GREEN CORRIDOR FOREST LANDSCAPE, THUA THIEN HUE PROVINCE

Green Corridor Project: Technical Report No 5

(June - 2006)





# REPORT ON BIODIVERSITY

## FISH

Survey group:

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BS. Trần Thị Cẩm Hà





# OBJECTIVES

- Identify composition of fish species in Green Corridor Project area
- Evaluate the species biodiversity in comparison with neighboring fauna.
- Collect scientific data to establish biodiversity conservation and sustainable development model.
- Carry out oriented biodiversity training to scientific staff.





# SURVEY TIME AND LOCATION

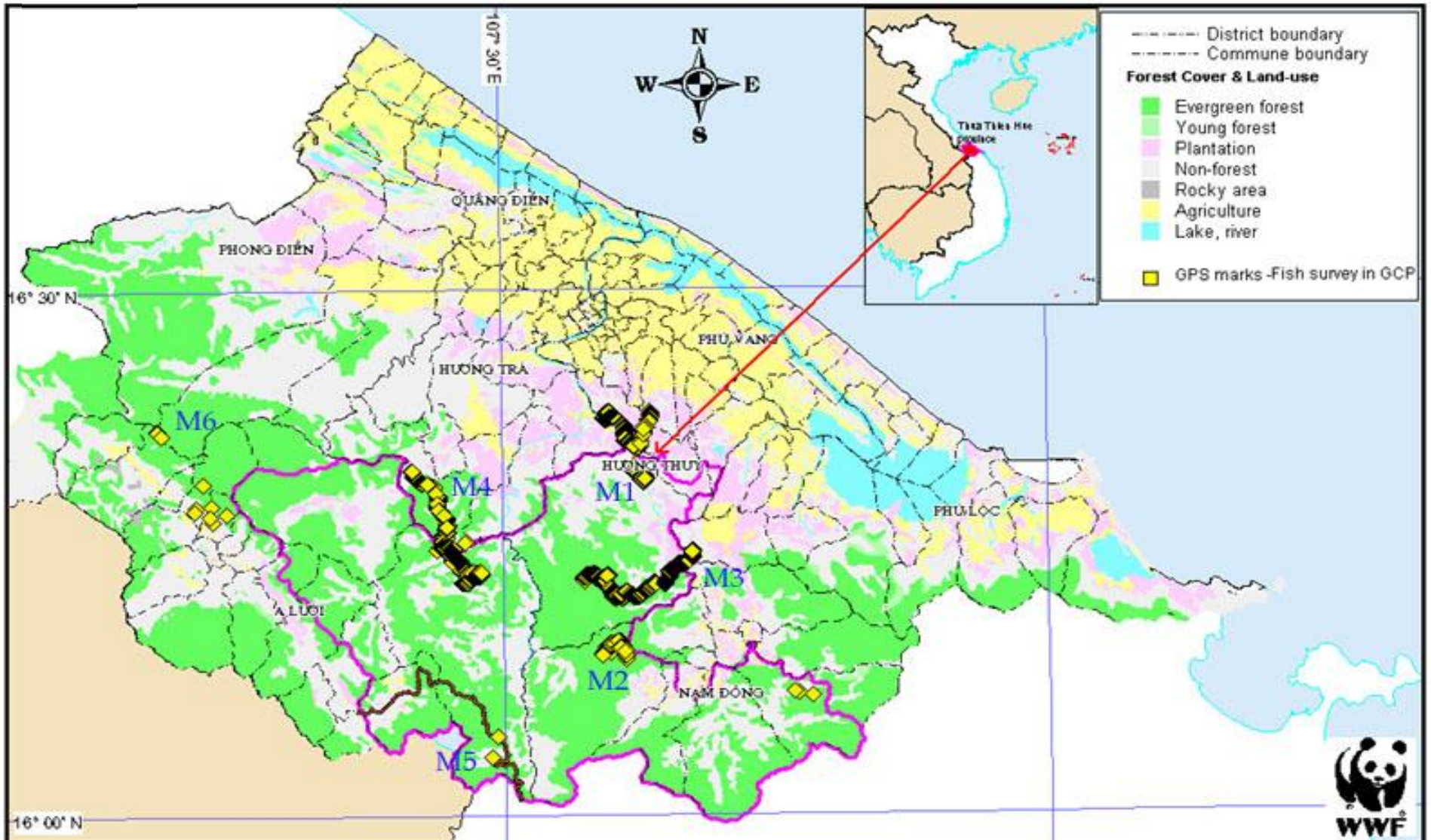
**Field survey: 23/4/2005 – 18/6/2005**

**Location:**

**3 mountainous districts in Thua Thien Hue province**

- . Nam Ông**
- . A L i**
- . H ãng Th y**





**Map of fish sample collection in Green Corridor forest landscape**





# SURVEY METHODOLOGY

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## *Field*

- Select survey lines.
- Use electric equipment, fish net.
- Use GPS, record features of watershed.
- Take field photographs at sample collection points.
- Take photographs, classify, preliminary handle and shape fixing by formaldehyde.





## *In laboratory*

- Identify fish species by comparison method of shape based on identification keys.
- Arrange by taxon order based on the classification system of T.R. Rass, G.U. Lindberg (1971) and FAO (1998).
- Compare samples with standard ones in Zoology Museum at Hanoi National University.





# SURVEY RESULTS

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## Species composition

TT	B (Orders)	H (Families)	Loài (Species)	T 1 % Percentage %
1	Anguilliformes	1	1	1,30
2	Cypriniformes	3	56	70,9
3	Siluriformes	3	4	5,10
4	Synbranchiformes	1	1	1,30
5	Perciformes	5	17	21,5
	<b>Total</b>	<b>13</b>	<b>79</b>	<b>100</b>





# SURVEY RESULTS

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## Compare survey sites

Location	Species quantities	Percentage %
Chà M ng (N. ông)	17	21,5
D ng Hòa (H. Th y)	32	40,5
La Ma (Nam ông)	21	26,6
Trà V (A L i)	43	54,4
A Roàng (A L i)	22	27,8
H ng Vân (A L i)	28	35,4





# SURVEY RESULTS

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## Analysis of economic species

➤ Focus on Cá chép (Cyprinidae).

➤ Distribution in the survey locations is different:

+ H ng Vân - A L i: Cá cháo *Opsarius punchellus*, Cá chiêm su i *Glyptothorax interpinalum*, Cá ng a *Hampala microleppidota*, Cá lúi *Osteochilus hasellti*, Cá x m *Danio leptos*, Cá r m xanh *Neochillus stracheyi*...

+ Common species in the plain area found in Hong Van such as Cá di c *Carassius auratus*, Cá ch ch bùn *Misgurnus anguillicaudata*, Cá c n *Puntius semifasiolatus*.





# SURVEY RESULTS

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## Analysis of advantage species

Common species and distribution density of species is different.

+ H ãng Thu : cá sao Poropuntius, Cá s t môi Garra,

+ Nam ãng: Cá xanh Scaphiodonichthys, Cá s nh Onychostoma, ...

+ A L ãi: Cá x m Danio, Cá r m Onychostoma, cá c Hemibarbus,...





# SURVEY RESULTS

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## *Economic fish species in Green Corridor forest landscape*

Including 22 economic fish species



*Cá sao*

*Poropuntius laoensis* Gunther, 1968

Cyprinidae



*Cá chu i su i*

*Chana gachua* Hamilton, 1822

Channidae





# SURVEY RESULTS

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## *Economic fish species in Green Corridor forest landscape*



*Cá xanh*

*Onychostoma fusiforme* Kottelat, 1998

Cyprinidae



*Cá ng a nam*

*Hampala microlepidota*

Kuhl & Van Hasselt, 1883

Cyprinidae





# SURVEY RESULTS

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## Rare fish species

	Scientific name	Vietnamese name	Level
1	<i>Anguilla marmorata</i> Quoy & Gaimand, 1842 ①	Cá chình hoa	R
2	<i>Onychostoma laticeps</i> Gunther, 1896 ②	Cá s nh gai	V





# SURVEY RESULTS

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## *Fish species newly determined*

Ser. No	Scientific name	Vietnamese name
1	<i>Poropuntius angutus</i> Kottelat, 2000	Cá sao
2	<i>P. solitus</i> Kottelat, 2000	Cá sao
3	<i>P. carinatus</i> Kottelat, 1998	Cá sao
4	<i>P. bolovenensis</i> Roberts, 1998	Cá sao
5	<i>Onychostomata fusiforme</i> Kottelat, 1998	Cá xanh
6	<i>Danio leptos</i> Fang & Kottelat, 1999	Cá x m
7	<i>Sewellia elongata</i> Roberts, 1998	Cá bắm á





# SURVEY RESULTS

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## *Fish composition in Green Corridor and surrounding areas*

Ser.No	Fish fauna	Species
1	Green Corridor Project area, 2005	79
2	Dakrong Nature Reserve, Mai ình Yên, 2004	72
3	Bach Ma National Park, Võ V ãn Phú, 2004	57
4	Freshwater fish in Huong river, Võ V ãn Phú, 2005	121





# SURVEY RESULTS

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## *Similarity index (S) of fish in Green Corridor area in comparison with surrounding areas*

No	Fish fauna	Total species	General species	Percentage % (*)	Index Sorensen (**)	Author
1	Bach Mã National Park	57	19	24,1	0,28	Võ Văn Phú, 2004
2	Fresh water fish in Huong river	121	16	20,3	0,16	Võ Văn Phú, 2005
3	Dakrong Nature Reserve	72	19	24,1	0,25	Mai Đình Yên, 2004

**Green Corridor fish fauna is quite different from and not similar to other in Bach Ma National Park, Dakrong Nature Reserve and Huong river**





# SURVEY RESULTS

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## *Threats to conservation.*

**Fish catching activities** 1

**Habitat reduced and degraded** 2

**Awareness of environmental and Nature resources protection.** 3





# CONCLUSION

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- + **Identify 79 fish species of 38 taxa, 13 families, 5 orders.**
- + Identified 7 new species proclaimed in the recent years.
- + 25 species with different characteristics from species in the same taxon
- + Identified 22 economic fish species with commercial value and used as food.
- + Identified 2 rare species
- + Green Corridor fish fauna is different from and not similar to that of Bach Ma National Park and Dakrong Nature Reserve and Huong river.





# RECOMMENDATIONS

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1. Need essential methods to control the exploitation of fish biodiversity.
2. Implement strict protection. Prevent deliberate or undeliberate block streams for development activities.
3. Need suitable and sustainable methods for feasible conservation and sustainable development





# RECOMMENDATIONS

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4. Encourage orientated environment and biodiversity production activities.
5. Communicate, educate and raise awareness to local communities. Train and raise awareness, experience to staff who are in charge of biodiversity conservation and sustainable environmental and ecological development.
6. Carry out further surveys on fish species in some habitats in and outside project area.





# Thank You

- + Prof. Dr. Vo Van Phu
- + MSc. Ho Thi Hong.
- + BS. Tran Thuy Cam Ha.





## PHOTO TAKEN IN GREEN CORRIDOR AREA



### 1. Cá chình hoa

*Anguilla marmorata* Quoy & Gaimard, 1824

Anguillidae





# PHOTO TAKEN IN GREEN CORRIDOR AREA



27. Cá s nh gai  
*Onychostoma laticeps* Gunther, 1896  
Cyprinidae





## PHOTO TAKEN IN GREEN CORRIDOR AREA



3. Cá sao  
*Poropuntius angutus* Kottelat, 2000  
Cyprinidae





## PHOTO TAKEN IN GREEN CORRIDOR AREA



5. Cá sao

*Poropuntius solitus* Kottelat, 2000

Cyprinidae





## PHOTO TAKEN IN GREEN CORRIDOR AREA



7. Cá sao

*Poropuntius carinatus* Kottelat, 1998

Cyprinidae





## PHOTO TAKEN IN GREEN CORRIDOR AREA



### 4. Cá sao

*Poropuntius bolovenensis* Roberts, 1998

Cyprinidae





## PHOTO TAKEN IN GREEN CORRIDOR AREA



29. Cá xanh  
*Onychostoma fusiforme* Kottelat, 1998  
Cyprinidae





## PHOTO TAKEN IN GREEN CORRIDOR AREA



46. Cá x m

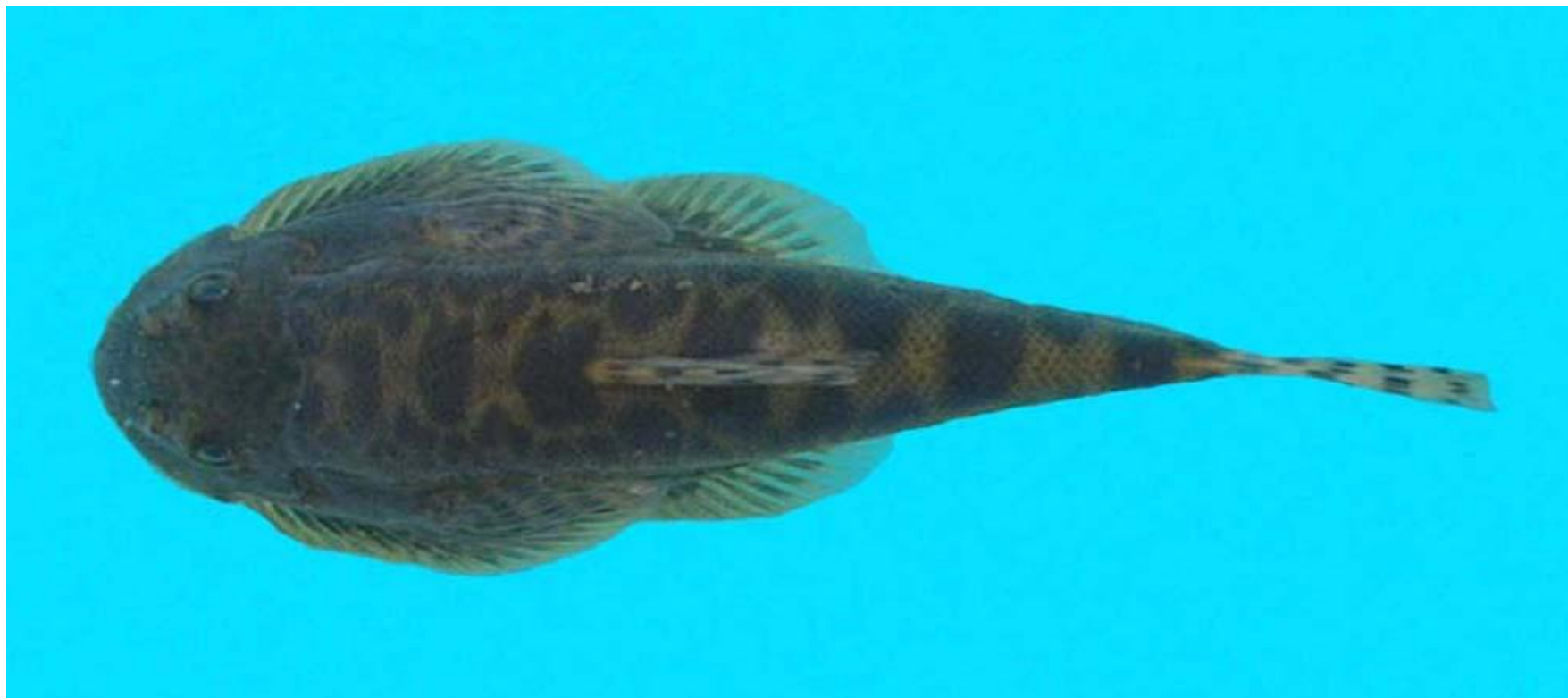
*Danio leptos* Fang & Kottelat, 1999

Cyprinidae

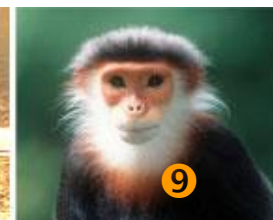




## PHOTO TAKEN IN GREEN CORRIDOR AREA



51. Cá b́ám á  
*Sewellia elongata* Roberts, 1998  
Belitoridae





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