

## Short Communication

## The birds of Patan district of Gujarat, India

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## ABSTRACT:

Study on the birds of Patan district was conducted during 2006-2008. Observations on bird species were recorded at two locations in each Taluka. Observations on breeding status, residential status, and utilization of site by various species, foraging guild and flocking habit were recorded by frequent visit of each site during study period. In all 141 bird species found in the Patan district, majority of them being regular breeder (88=62.41%), followed by irregular resident (22=15.60%), regular migrant bird species (14=9.93%) and more or less equal number of irregular migrant bird species (13=9.22%) were noted in Patan district, whereas, only three bird species were irregular breeder and Rosy Starling, *Sturnus roseus* was the only species found to be transient. It was also revealed that majority of bird species used the site under observation for foraging (96=68.09%) followed by foraging and nesting (17=12.06%) and foraging and cover (9=6.38%). None of the bird species recorded used the site solely either as cover or for roosting or nesting. Majority of bird species (77 = 54.61%) were ground forager, followed by ear head gleaner (12 = 8.51%), hawkers (10 = 7.09%), 51 species of birds (36.17%) preferred to live in group and only 10 species exhibited both solitary as well as group flocking habit.

## Keywords:

Birds, Patan, Habit.

## ABBREVIATIONS

- Residency status: RB = Regular Breeder; IB = Irregular Breeder; IM = Irregular Migrant; IR = Irregular Resident; RM = Regular Migrant; TR = Transient. (from north India or Palaearctic region)
- Utilization: C = Cover; F = Foraging; N = Nesting; R=Roosting.
- Foraging guild: Gd = Ground foraging; Eg = Earhead gleaner ; Fg = Foliage gleaner;
- H = Hawking; Pb = Probing wet mud; Pl = Plunge fishing; P-S = Perch-to-site forage; Sy = Sally.
- Flocking habit: S = Solitary; G = Group

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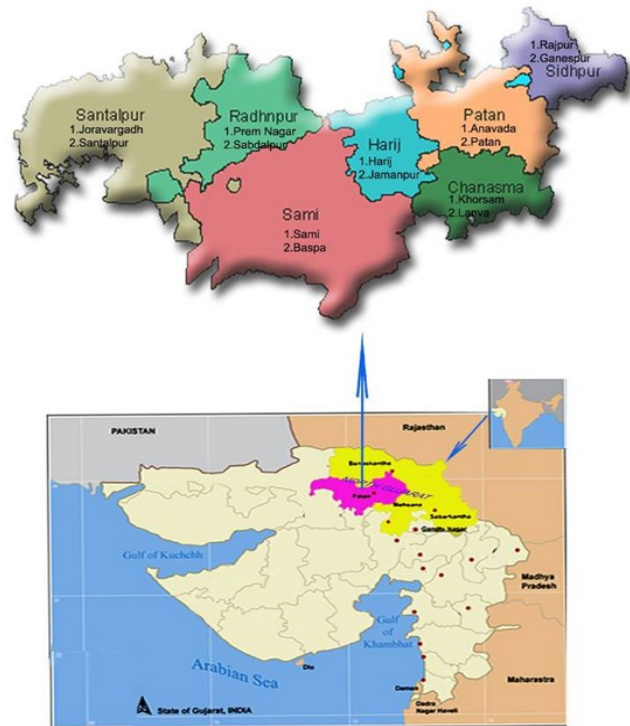
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**INTRODUCTION**

Gujarat State is situated on the western coast of India. Study area is selected within Gujarat State (Figure 1). The north Gujarat area is well known as a land of agriculture having very few natural forest lands. Patan district is located in northern part of the state. It is located 23°41' to 23°55' latitude and 71°31' to 72°20' longitude. It is surrounded by Banaskantha district to its north and north-east, Mehsana to its south and south-east and Kachchh district (Little Rann of Kachchh) by south-west. Geographical area of district is 6.37 lakhs ha. The district is situated in the semi-arid zone and suffering from low water supply. The average annual rainfall in the district is 876 mm. It is strongly periodic and seasonal. Total of 453 species of birds belonging to 65 families have been listed from Gujarat state (Anonymous, 1999) recent record is 494 species. This Record is updated by Dr. Parasharya BM. Bird conservation Society Gujarat in 2004 and the recent record is 526.

Patan district of north Gujarat region is concerned, no such published information is available in literature. In past Acharya (2003) has studied bird diversity in wetland area of Visnagar taluka of Mehsana district, whereas, Vyas (2005) has reported bird fauna of urban area of Visnagar.

Birds creatures constitute an vital component of agroecosystem. Agriculture gives a concentrated and very unsurprising source of food to birds (Oaeconnor and Shrub, 1986). Many birds revealed as pest to the



**Figure 1. Patan district map showing Taluka wise study sites**

agriculture is exceptionally old issue, however right now the greater part of the farmers are similarly mindful of the double role of birds as one of the critical biological control agents of insect pests of rural yields. Different investigations with respect to depredatory habits of birds to crop have been made. On the other hand, most of them are equally useful to crop as bio-control agent of insect pests. It is not true, All India ornithology project is sponsored by ICAR executed in Agricultural Universities of India, and is studying this aspect throughout India since last couple of decades. It is not an easy job to state which species is harmful and which is useful to crop. A species useful at one place may be neutral at the other or even harmful at some other place depending of on agroecosystem. It is necessary to study the agroecosystem of Patan district, prepare inventory of birds found in this district (Table 1).

**MATERIAL AND METHODS**

The survey of birds population was made by frequent visits to all the sites of Patan district during

**Table 2. Residency status of birds found in Patan district**

S. No.	Residency status of birds	Frequency	Percent
1	RB=Regular Breeder	88	62.41
2	IB=Irregular Breeder	3	2.13
3	RM=Regular Migrant	14	9.93
4	IM=Irregular Migrant	13	9.22
5	IR=Irregular Resident	22	15.60
6	TR= Transient	1	0.71
	<b>Total</b>	141	100.00

**Table 3. Utilization of site by various birds species in Patan district**

S. No	Utilization of site for	Frequency	Percent
1	C=Cover	0	0
2	F=Foraging	96	68.09
3	N=Nesting	0	0
4	R=Roosting	0	0
5	FN=Foraging and nesting	17	12.06
6	FC= Foraging and cover	9	6.38
7	FR= Foraging and roosting	7	4.97
8	FNC= Foraging, nesting and cover	7	4.97
9	FNCR= Foraging, nesting, cover and roosting	5	3.55
Total		141	100

2006 - 08. General observations of various types of birds were recorded covering various parameters like status, occurrence, breeding etc. Identification of different species of birds was carried out by noting down the various characters and with the help of keynotes from the standard book (Ali, 1979).

**RESULTS**

The paper gives an account of the avian fauna of Patan district. My study shows that the area is inhabited by more than 141 different types of birds belonging to different species, genera and families. The avian fauna is rich and majority of the birds are residents of the area studied.

**Residency status of birds**

Out of total 141 bird species found in Patan

**Table 4. Various types of foraging guilds used by birds in Patan district**

S. No	Foraging guild	Frequency	Percent
1	Gd=Ground foraging	77	54.61
2	Eg=Earhead gleaner	12	8.51
3	Fg=Foliage gleaner	9	6.38
4	H=Hawking	10	7.09
5	Pb=Probing wet mud	0	0
6	Pf=Plunge fishing	1	0.71
7	Ps=Perch to site forage	10	7.09
8	Sy=Sally	4	2.84
9	H,Ps	6	4.26
10	Pb, Gd	3	1.42
11	Gd, H	1	0.71
12	Gd, Eg	3	1.42
13	Ps, Sy	3	1.42
14	Fg, Ed	1	0.71
Total		141	100

district, majority of them were regular breeder (88=62.41%), followed by irregular resident (22=15.60%). There are 14 regular migrant bird species (9.93%) and more or less equal number of irregular migrant bird species (13=9.22%) were noted in Patan district, whereas, only three bird species were irregular breeder and Rosy Starling, *Sturnus roseus* was the only 1 species found to be transient (Table 2).

**Utilization of site**

The results presented in Table 3 revealed that majority of bird species used the site under observation for foraging (96=68.06%) followed by foraging and nesting (17=12.06%) and foraging and cover (9=6.38%). Seven species of birds used the sites either for foraging and roosting or foraging, nesting and cover (7=4.97) and only five species used it for foraging, nesting, roosting and as cover. None of the bird species recorded used the site solely either as cover or for roosting or nesting. Foraging guilds

Table 4 shows that the results further revealed that majority of bird species (77=54.61%) were ground forager, followed by ear head gleaner (12 = 8.51%), hawkers (10 = 7.92%), perch to site foragers was

**Table 5. Flocking habit of bird species found in Patan district**

S. No	Flocking habit	Frequency	Percent
1	S=Solitary	80	56.74
2	G=Group	51	36.17
3	S, G	10	7.19
Total		141	100

**Table 1. Taxonomic composition and ecological characteristics of the birds found in Patan district**

<b>Bird (Scientific Name)</b>	<b>Residency status</b>	<b>Utilization</b>	<b>Foraging guild</b>	<b>Flocking habit</b>
Little Grebe <i>Tachybaptus ruficollis</i>	RB	F	Gd	S, G
Great White Pelican <i>Pelecanus onocrotalus</i>	RB	F	Gd	G
Great Cormorant <i>Phalacrocorax carbo</i>	RB	F	Gd	S, G
Little Cormorant <i>Phalacrocorax. niger</i>	RB	F	Gd	S, G
Darter <i>Anhinga melanogaster</i>	RB	F	Gd	S
Grey Heron <i>Ardea cinerea</i>	RB	F	Gd	S
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	RM	F	Gd	S
Indian Pond Heron <i>Ardeola grayii</i>	RB	F	Gd	S
Great Egret <i>Casmerodius albus</i>	RB	F	Gd	S, G
Intermediate Egret <i>Mesophoyx intermedia</i>	RB	F	Gd	S
Little Egret <i>Egretta garzetta</i>	IR	F	Gd	S, G
Cattle Egret <i>Bubulcus ibis</i>	RB	F	Gd	G
Painted Stork <i>Mycteria leucocephala</i>	RM	F	Gd	G, S
White-necked Stork <i>Ciconia episcopus</i>	RB	F	Gd	G, S
Black-Headed Ibis <i>Threskiornis melanocephalus</i>	RB	F	Gd	G
Black Ibis <i>Pseudibis papillosa</i>	RB	F	Gd	G
Glossy Ibis <i>Plegadis falcinellus</i>	RB	F	Gd	G
Eurasian Spoonbill <i>Platalea leucorodia</i>	RB	F	Gd	G
Lesser Whistling-Duck <i>Dendrocygna javanica</i>	RB	F	Gd	G
Common Teal <i>Anas Crecca</i>	RM	F	Gd	G
Gadwall <i>Anas strepera</i>	RM	F	Gd	G
Garganey <i>Anas querquedula</i>	RM	F	Gd	G
Northern Shoveller <i>Anas clypeata</i>	RM	F	Gd	G
Comb Duck <i>Sarkidiornis melanotos</i>	RB	F	Gd	G
Black-shouldered Kite <i>Elanus caeruleus</i>	RM	F	H	S

Continued...

Oriental Honey Buzzard <i>Pernis ptilorhynchus</i>	RM	F	H	S
Black Kite <i>Milvus migrans</i>	RM	F	H	S
Brahminy Kite <i>Haliastur indus</i>	RB	F	H	S
Shikra <i>Accipiter badius</i>	RB	F	PS	S
White-eyed Buzzard <i>Butastur teesa</i>	RB	F	HPS	S
Tawny Eagle <i>Aquila rapax</i>	RB	F	HPS	S
Red-headed Vulture <i>Sarcogyps calvus</i>	RB	F	HPS	S
Common Kestrel <i>Falco tinnunculus</i>	RB	F	HPS	S
Grey Francolin <i>Francolinus pondicerianus</i>	RB	F	Gd	G
Indian Peafowl <i>Pavo cristatus</i>	RB	F	Gd	G
Whitebreasted Waterhen <i>Amaurornis phoenicurus</i>	RB	FNCR	Gd	S
Common Moorhen <i>Gallinula chloropus</i>	RB	FNCR	Gd	S
Common Coot <i>Fulica atra</i>	RB	FNCR	Gd	S
Pheasant-tailed Jacana <i>Hydrophasianus chirurgus</i>	IR	F	Gd	G
Pied Avocet <i>Recurvirostra avosetta</i>	RB	F	Gd	G
Red-wattled Lapwing <i>Vanellus indicus</i>	RB	FR	Gd	S
Common Greenshank <i>Tringa nebularia</i>	RM	FR	PbGd	S, G
Common Sandpiper <i>Actitis hypoleucos</i>	RM	FR	PbGd	G
Ruff <i>Philomachus pugnax</i>	RB	FR	PbGd	S, G
River Tern <i>Sterna aurantia</i>	RB	FR	GdH	S
Yellow-legged Green Pigeon <i>Treron phoenicoptera</i>	RB	F	Gd	S
Blue-Rock Pigeon <i>Columba livia</i>	RB	F	Gd	S
Eurasian Collared Dove <i>Streptopelia decaocto</i>	RB	F	Gd	S
Red Collared Dove <i>Streptopelia tranquebarica</i>	RB	F	Gd	S
Spotted Dove <i>Streptopelia chinensis</i>	RB	F	Gd	S
Laughing Dove <i>Streptopelia senegalensis</i>	RB	F	Gd	S, G
Rose-ringed Parakeet <i>Psittacula krameri</i>	RB	F	Gd, Eg	G

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Pied Cuckoo <i>Clamator jacobinus</i>	RB	F	PS	S
Asian Koel <i>Eudynamys scolopacea</i>	RB	F	PS	S
Greater Coucal <i>Centropus sinensis</i>	RB	F	PS	S
Eurasian Eagle Owl <i>Bubo bubo</i>	RB	F	H,PS	S
Spotted Owlet <i>Athene brama</i>	RB	F	H,PS	S
House Swift <i>Apus affinis</i>	RB	F	H	G
Pied Kingfisher <i>Ceryle rudis</i>	RB	F	PI	S
White-breasted Kingfisher <i>Halcyon smyrmensis</i>	RB	F	PS	S
Blue-cheeked Bee-eater <i>Merops persicus</i>	RB	F	SY	S
Green Bee-eater <i>Merops orientalis</i>	RB	F	SY	S
Indian Roller <i>Coracias benghalensis</i>	RB	F	PS	S
Common Hoopoe <i>Upupa epops</i>	RM	F	Gd	S
Coppersmith Barbet <i>Megalaima haemacephala</i>	RM	F	PS	S
Black-Rumped Flameback Woodpecker <i>Dinopium benghalense</i>	RB	F	PS	S
Yellow-crowned Woodpecker <i>Dendrocopos mahrattensis</i>	RB	F	PS	S
Indian Bush Lark <i>Mirafra erythroptera</i>	IR	FN	Gd	S
Oriented Skylark <i>Alauda gulgula</i>	IR	FN	Gd	S
Rufous-tailed Lark <i>Ammomanes phoenicura</i>	IR	FN	Gd	S
Ashy-crowned Sparrow-Lark <i>Eremopterix grisea</i>	IR	FN	Gd	S
Plain Martin <i>Riparia paludicola</i>	IR	F	H	G
Dusky Crag Martin <i>Hirundo concolor</i>	IR	F	H	G
Barn Swallow <i>Hirundo rustica</i>	RM	F	H	G
Red-rumped Swallow <i>Hirundo daurica</i>	IR	F	H	G
Wire-tailed Swallow <i>Hirundo smithii</i>	IR	F	H	G
Baybacked Shrike <i>Lanius vittatus</i>	IR	F	PS,SY	S
Long-tailed Shrike <i>Lanius schach</i>	IR	F	PS,SY	S
Southern Grey Shrike <i>Lanius meridionalis</i>	IR	F	PS,SY	S

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Eurasian Golden Oriole <i>Oriolus oriolus</i>	IR	F	Gd	S
Black Drongo <i>Dicrurus macrocercus</i>	RB	F	SY	S
White-bellied Drongo <i>Dicrurus caerulescens</i>	IR	F	SY	S
Rosy Starling <i>Sturnus roseus</i>	Trans	F	Gd	G
Brahminy Starling <i>Sturnus pagodarum</i>	RB	F	Gd	G
Common Myna <i>Acridotheres tristis</i>	RB	F	Gd	G
Bank Myna <i>Acridotheres ginginianus</i>	RB	F	Gd	G
Rufous TreePie <i>Dendrocitta vagabunda</i>	IR	F	Gd	S
House Crow <i>Corvus splendens</i>	RB	F	Gd	G
Large billed Crow <i>Corvus macrorhynchos</i>	IR	F	Gd	G
Blackheaded Cuckoo-Shrike <i>Coracina melanoptera</i>	RB	F	Gd	S
Common wood shrike <i>Tephrodornis pondicerianus</i>	RB	F	Gd	S
Large Cuckoo Shrike <i>Coracina macei</i>	RB	F	Gd	S
Small Minivet <i>Pericrocotus cinnamomeus</i>	IR	F	Gd	S
Common Iora <i>Aegithina tiphia</i>	IR	FR	PS	S
Marshall's Iora <i>Aegithina nigrolutea</i>	IR	FR	PS	S
Red-vented Bulbul <i>Pycnonotus cafer</i>	RB	F	Gd,Eg	S
White-eared Bulbul <i>Pycnonotus leucotis (P.leucotis)</i>	RB	F	Gd,Eg	S
Red-brested Flycatcher <i>Ficedula parva</i>	RB	FNCR	Fg	S
Whitebrowed Fantail <i>Rhipidura aureola</i>	RB	FNCR	Fg	S
Yelloweyed Babbler <i>Chrysomma sinense</i>	RB	F	Gd	G
Common Babbler <i>Turdoides caudatus</i>	RB	F	Gd	G
Jungle Babbler <i>Turdoides striatus</i>	RB	F	Gd	G
Large Grey Babbler <i>Turdoides malcolmi</i>	RB	F	Gd	G
Zitting cisticola <i>Cisticola juncidis</i>	RB	FNC	Fg	S
Plain Prinia <i>Prinia inornata</i>	RB	FNC	Fg	S

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Ashy Prinia <i>Prinia socialis</i>	RB	FNC	Fg	S
Rufousfronted Prinia" <i>Prinia buchanani</i>	RB	FNC	Fg	S
Jungle Prinia <i>Prinia sylvatica</i>	RB	FNC	Fg	S
Grey breasted Prinia <i>Prinia hodgsonii</i>	RB	FNC	Fg	S
Comon Tailor Bird <i>Orthotomus sutorius</i>	RB	FC	Fg	S
Clamorous Reed Warbler <i>Acrocephalus stentoreus</i>	IM	FC	Gd	S
Indian Robin <i>Saxicoloides fulicata</i>	RB	FC	Gd	S
Oriental Magpie Robin <i>Copsychus saularis</i>	RB	FC	Gd	S
Black Redstart <i>Phoenicurus ochruros</i>	IM	FC	Gd	S
Isabelline Wheatear <i>Oenanthe isabellina</i>	IM	FC	Gd	S
Desert Wheatear <i>Oenanthe deserti</i>	IM	FC	Gd	S
Variable Wheatear <i>Oenanthe picata</i>	IM	FC	Gd	S
White naped Tit <i>Parus nuchalis</i>	RB	FC	Gd	S
Paddyfield Pipit <i>Anthus Rufulus</i>	IB	FN	Gd	S
TreePipit <i>Anthus trivialis</i>	IB	FN	Gd	S
Tawny Pipit <i>Anthus campestris</i>	IB	FN	Gd	S
White Wagtail <i>Motacilla alba</i>	IM	FN	Gd	G
Yellow Wagtail <i>Motacilla flava</i>	IM	FN	Gd	G
Citrine Wagtail <i>Motacilla citreola</i>	IM	FN	Gd	G
Grey Wagtail <i>Motacilla cinerea</i>	IM	FN	Gd	G
White Browed Wagtail <i>Motacilla maderaspatensis</i>	IM	FN	Gd	G
Purple Sunbird <i>Cinnyris asiaticus</i>	RB	FN	Eg	S
Oriental White-eye <i>Zosterops palpebrosus</i>	RB	FN	Eg	S
House Sparrow <i>Passer domesticus</i>	RB	F	Gd	G
Yellow-throated Sparrow <i>Petronia xanthocollis</i>	IR	FN	Gd	S
Baya Weaver <i>Ploceus philippinus</i>	RB	FN	Fg, Ed	G

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Red Avadavat <i>Amandava amandava</i>	RB	FNC	Eg	G
Green Avadavat <i>Amandava formosa</i>	RB	F	Eg	G
White-throated Munia <i>Euodice malabarica</i>	RB	F	Eg	G
White-rumped Munia <i>Lonchura striata</i>	RB	F	Eg	G
Blackheaded Munia <i>Lonchura kelaarti</i>	RB	FN	Eg	G
Scaly breasted munia <i>Lonchura punctulata</i>	RB	F	Eg	G
House Bunting <i>Emberiza striolata</i>	IR	F	Eg	G
Grey-hooded Bunting <i>Emberiza buchanani</i>	IM	F	Eg	G
Black-headed Bunting <i>Emberiza melanocephala</i>	IM	F	Eg	G
Red-headed Bunting <i>Emberiza bruniceps</i>	IM	F	Eg	G

resorting to plunge fishing. Among combination of foraging guilds, hawking and perch to site foragers constituted the largest group(6 = 4.26).

#### Flocking habits

According to Table 5 the results also indicated three types of flocking habit of the birds, out of which most of the species lived solitary life, whereas, 51 species of birds (36.17%) preferred to live in group and only 10 species exhibited both solitary as well as group flocking habit.

#### DISCUSSION AND CONCLUSION

The inhabitants of the Patan city have arrived from surrounding villages and basically deal in agriculture. Several species of crop plants are cultivated. The grassland is short lived and the foliage period is limited to the monsoon months only. There is a deciduous forest area nearer to this zone. The vegetation in open stabilized soil soon after the rains is abundant in a form of grasses and other species. *Leucas aspera*, *Tridax procumbens*, *Celosia argentia*, *Euphorbia hirta* and *Amaranthus* spp. etc. are common weeds. Meaning is not clear reform the sentence.

A large number of tall trees like sisu (*Dalbergia sissoo*), mango(*Mangifera indica*), banyan (*Ficus benghalensis*) and peepal (*Ficus religiosa*), etc. are scattered all over the district. The main trees that cover the district area are *Azadirachta indica* (Limbdoo), *Acacia Arabica* (Baval), *Ficus religiosa* (Pimpalo), *Delonix regia* (Gulmohar), *Eugenia jambolana* (Jambu), *Zizyphus jujube* (Bor), *Mangifera indica* (Ambo), *Moringa oleifera* (Sargavo), *Salvadora percica* (Vakhado) and other shrubs and trees. Many of the above trees are used by birds as nesting places as they are tall and leafy, without thorns. Many Neem trees are crowned with nests of crows. The mixed vegetation of dominating trees, flowering shrubs and bushes, open territory and neighboring water sources give a healthy environment to the birds and thus substantial groups and many birds can be noted. Common Myna, Yellow Footed green Pigeon and Egrets, and so on are perched on shadow lengthened trees. The birds are settled on this tree for the night to the accompaniment of a great deal of cacophony. Blue Rock Pigeon and Indian Ring Dove are granivorous birds and they damaged sown seeds of sesamum and sorghum. Indian Black Ibis feed on groundnut in harvested fields.

Indian Peafowl feed on tender leaves and flowers of cucumber, ground nut and cotton.

Roseringed Parakeet feed on fruits of chilly and millet crops. Trees provided perching sites for feeding to Parakeets. Trees might also have provided nesting sites to them. Trees of Khijado (*Prosopis cineraria*) in the middle or along the borders of fields provided shelter to small passerines; these fields also suffered heavy damage. Baya weaver birds performed dual role as its feed upon larvae of insects of different crops but damaging leaves of sorghum for nest construction. It also used leaf blades of weeds for the nest. Common Myna, Bank Myna, Common Babbler and Rosy Pastor are feeding on insect pest of various crops.

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