

A breeding Redshank survey of saltmarshes in North Norfolk.

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Summary

A full survey of the breeding population of Common Redshank (*Tringa totanus*) within the entirety of saltmarsh habitat along the North Norfolk coast was conducted for the first time in 2024. This coastline is an internationally recognised conservation area known to support a significant portion of the UK breeding Redshank population with more stable trends compared to other UK regions. Previous surveys have only covered a small proportion of the total saltmarsh area however, so a more comprehensive survey was needed.

Key findings:

- **Survey area and scope:** Covering around 2,560 hectares of saltmarsh between Holme and Salhouse, the survey covered all the saltmarsh in the region and included four previously surveyed national Redshank survey plots.
- **Redshank breeding population size:** Standardised survey methods recorded 597 pairs of Redshank at an average density of 23.3 pairs per square kilometre (km²).
- **Breeding success:** An average of 32.3% of pairs were estimated to have chicks during the survey visit in early June following an accepted method of assessing productivity (Gross Territorial Success). This is below the accepted threshold of 43% required to sustain a stable population.
- **Decline in breeding density:** Breeding density declined by 29% overall between 2011 and 2024 across four survey sampling plots which were surveyed as part of the National Redshank Survey in 2011.
- **Influencing factors:** A number of key factors were identified which may be influencing Redshank breeding success. These include climate change, notably sea-level rise resulting in high spring tides, disturbance by people and dogs, and predation. None of the sites surveyed were grazed with livestock.
- **Other species:** A total of 292 pairs of Oystercatcher were recorded within the same survey area. Although Redshank and Oystercatcher were the two dominant breeding species within the saltmarsh, Meadow Pipit, Skylark, Reed Bunting, Shelduck, Gadwall and Mallard, as well as Herring, Lesser Black-backed and Black-headed Gulls were also recorded.

To improve breeding success and support population stability, it is suggested to:

- Aim to **attract Redshank 'over the sea wall'** into safer habitat, through either better management of existing coastal grazing marsh or re-creating more habitat.
- Adapt future **managed realignments** to better accommodate Redshank by incorporating diverse topographic features and enhancing feeding areas.

- Where possible, **access should be restricted** on key saltmarsh areas during the critical spring season (April–June), and at a minimum, dogs be kept on a lead at this time, with clear signage displayed to alert visitors to the importance of the site.
- Conduct **further assessments** into the impacts of climate change, disturbance and predation on breeding success, as well as potential new habitat.

This survey underlines the importance of the North Norfolk coast for Redshank conservation, supporting 2.7% of the total UK population and nearly 6% of the English saltmarsh population. It also highlights the need for habitat expansion and adaptive management to mitigate ongoing population declines.

1. Introduction

Saltmarsh habitats play a vital role in the breeding ecology of the Redshank. Within Great Britain, Redshank also breed on inland habitats including lowland wet grassland and upland grassland, but saltmarsh supports more breeding pairs than any other habitat, with around 45% of the population estimated to breed on the coast (Brindley *et al.*, 1998). The total European breeding population of Redshank has been estimated at 92,300 – 115,000 pairs (EU, 2019), with 19–24% breeding in the UK (the most recent estimates of the UK breeding population being a total of 22,000 breeding pairs in 2016; Woodward *et al.*, 2020). 11,946 pairs were estimated as breeding on Great British saltmarsh in 2011 (Malpas *et al.*, 2013). This means that GB saltmarsh supports a significant proportion of the European population, making it an internationally important habitat for the species. However, Redshank populations have seen steep declines, with a reported 53% decrease on saltmarshes over recent decades (Malpas *et al.*, 2013).

The value of saltmarshes is being increasingly recognised for carbon storage, flood management and as representatives of some of the last ‘wilderness’ areas. The importance of saltmarshes and the other intertidal and coastal wetlands are valued and protected through national and international designations, and migratory birds monitored monthly at the most important areas through the BTO/RSPB/JNCC Wetland Bird Survey (WeBS). However, breeding birds on salt marshes are relatively poorly studied. To address this gap, RSPB and Natural England initiated a new project to clarify the numbers, trends and issues affecting breeding birds of saltmarshes in England so that we can target appropriate management. The flagship species for this project is the Redshank. For this species in particular, understanding current numbers, trends and issues is critical to ensuring their survival as a breeding species.

In 2024, the first year of the project, the saltmarshes of North Norfolk and The Humber Estuary were comprehensively targeted, with neither area having had a complete census of their breeding Redshank populations previously. This report presents the results and conclusions for North Norfolk.

Estimates of the GB population of saltmarsh breeding Redshank have been undertaken previously in 1985, 1996 and 2011 (Allport *et al.*, 1986; Brindley *et al.*, 1998; Malpas *et al.*, 2013). In 1985, a total of 77 sample survey plots were identified in key saltmarsh habitats around the country, with 64 being re-surveyed in 1996 and 57 in 2011. In North Norfolk,

there were four survey sample plots; at Thornham, Scolt Head, Stiffkey and Morston saltmarshes. In total they amounted to 182 ha of habitat. Estimates for regional and national totals were extrapolated from these survey plots (Malpas *et al.*, 2011; Malpas *et al.*, 2013). In 2024, all the saltmarsh between Holme in the west and Salthouse in the east was surveyed, including repeating the sample plots, with the total area amounting to 2,560 ha (see Map 1 for survey area).

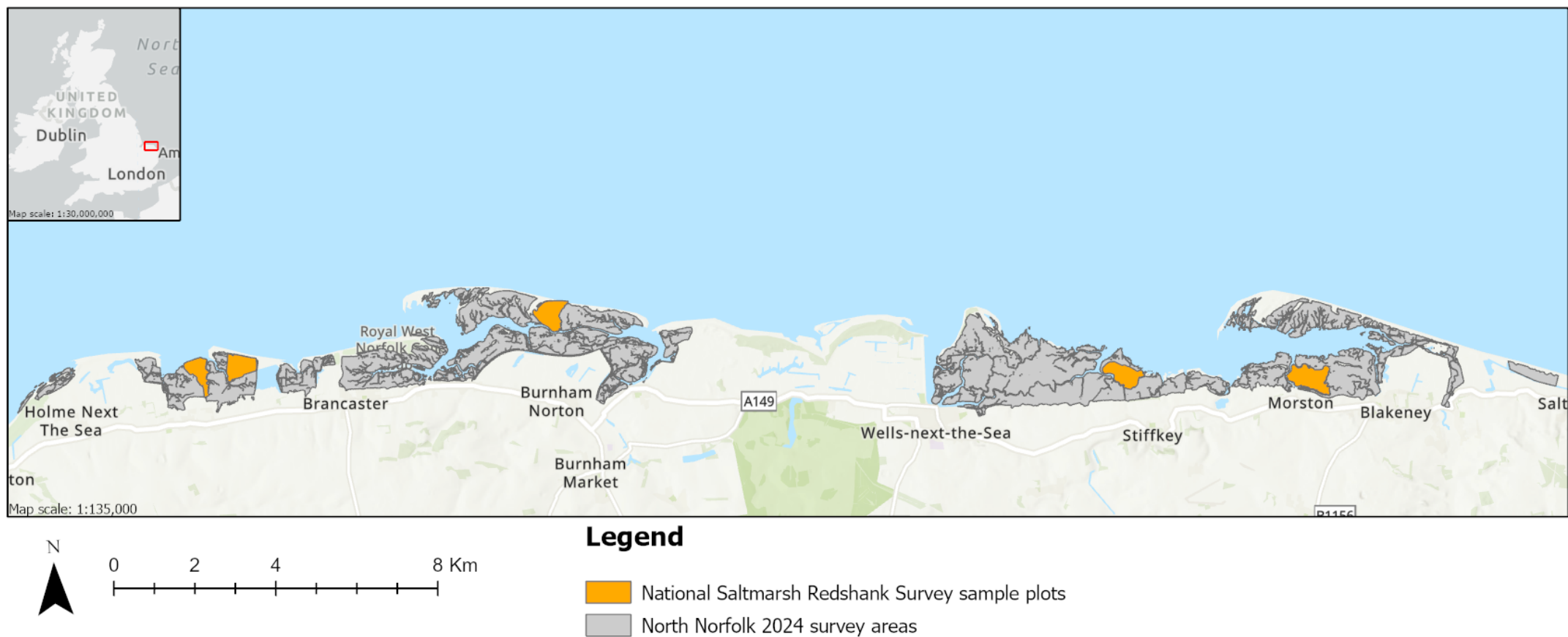
2. Method

Breeding Redshank were surveyed using standard methods developed by Green *et al.* (1984) and Allport *et al.* (1986). All sites were visited three times between mid-April and mid-June with at least ten days between survey visits, with surveyors walking a standard route developed for each site which approached 100 m of all areas. The timing of surveys was governed by the tide, with access to most sites only possible when tides were low or receding. All counts were conducted in the morning, between one hour after sunrise and midday. No surveys were undertaken in rain or winds greater than Gale Force 5.

The mean number of Redshank counted on the first two visits (before May 31st) excluding flocks of six or more birds was used to estimate the peak number of pairs with nests for each transect. The breeding density was estimated by dividing the total number of pairs by the total area of the site surveyed.

The number of alarm-calling adult Redshank was recorded on the third visit (in June) and used to estimate productivity based on the Gross Territorial Success (GTS) described by Oosterveld *et al.* (2011), which offers a rough indication of breeding performance up to fledging. GTS refers to the percentage of alarming pairs during the week when the first chicks fledge, relative to the total number of breeding pairs estimated on the first two visits. For Redshank, a GTS of less than 43% is regarded as an insufficient rate to maintain a stable population, while 43-50% is likely sufficient, and 50% or higher is considered enough for population stability (Oosterveld *et al.*, 2011).

To gain a fuller picture of the number of Redshank along the North Norfolk coast, site managers of adjacent coastal grazing marshes were also asked for their Redshank breeding figures. Within the surveys on the saltmarsh, pairs of breeding Oystercatcher were also recorded.



Map 1. Survey area in North Norfolk in 2024: all grey shaded areas were covered.

3. Survey results

A total of 597 pairs of Redshank were recorded across the total survey area of 2,560 ha, giving an average density of 23.3 pairs per square kilometre (km²) (see Table 1.). Breeding Redshank were found to be present across all sites, though their population density and breeding success varied. In addition, a further 114 pairs of Redshank were recorded on coastal grazing marsh behind the saltmarsh blocks, the majority at Holkham and Burnham Norton, making a total of 711 pairs along the North Norfolk coast.

Redshank density varied greatly from 5.2 to 41.2 pairs per km² in the various saltmarsh blocks, and from 31.4 to 65.8 pairs per km² in the four sample plots.

The proportion of pairs alarming in early June and thus having chicks (GTS) was estimated at 32.3%. However, breeding success varied between areas, ranging from 14.3 to 45.1%.

A total of 292 pairs of Oystercatcher were recorded within the same survey area. Although Redshank and Oystercatcher were the two dominant breeding species within the saltmarsh, Meadow Pipit, Skylark, Reed Bunting, Shelduck, Gadwall and Mallard, as well as Herring, Lesser Black-backed and Black-headed Gulls were also recorded.

Table 1. Redshank survey results for the North Norfolk saltmarsh 2024

ND = No data

	Pairs	Density (Prs/Km ²)	GTS (%)	Pairs (sample plots)	Sample plot density (Prs/Km ²)	% change in pairs on sample plots 2011-2024
Holme	26	20.4	ND	-	-	
Thornham	28	12.8	28.6	17	31.4	-43.3
Titchwell saltmarsh	7	5.2	14.3	-	-	
Brancaster Harbour	85	27.8	42.4	-		
Scolt Head	70	30.6	20.0	22	55.7	+83.3
Burnham Norton/Overy	65	23.5	44.6	-		
East Hills/Warham	118	18.0	25.4	-		
Stiffkey	70	41.2	14.3	25	65.8	-13.8
Morston	91	37.1	45.1	30	59.4	-50.0
Blakeney/Cley	37	20.0	ND	-		
Total	597	23.3	32.3%			

The average density of 23.3 prs per km² masks great variation between the areas, but was similar to the average density of 32.79 prs per km² found in the Humber survey (Jost and Pilsworth, 2025). The four sample plots had noticeably higher densities than the average. This may be explained by the plots originally being selected within the areas of saltmarsh with better habitat quality. Comparison of the average plot densities over the four surveys (see Figure 1) shows a generally increasing trend over the first three, but a concerning decline of around 29% in the current survey. This overall decline in density between 2011 and 2024 is driven by declines on three of the sample plots (Thornham, Stiffkey and Morston) while densities on Scolt Head increased back to pre-2011 levels. Scolt, Stiffkey and Morston had high breeding densities of between 55 and 65 pairs per km² in 2024 and are large areas of quality saltmarsh. Thornham by contrast, had a lower density (although still

higher than the average of all saltmarsh) and is a lower level marsh prone to flooding and with apparent higher human disturbance rates.

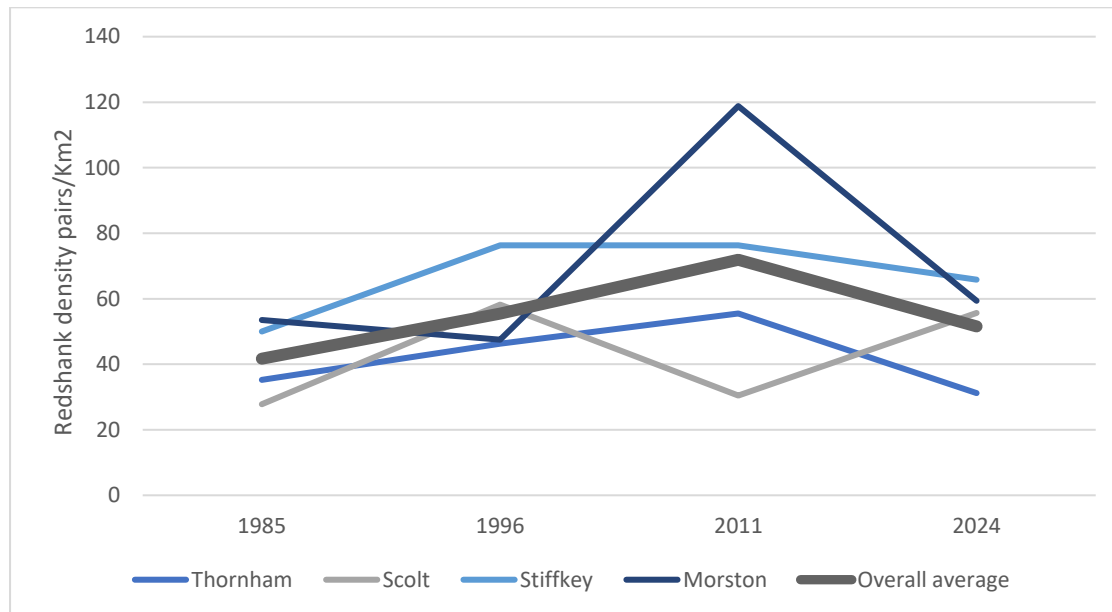


Figure 1. Redshank breeding density on the four sample survey plots 1985-2024

4. Discussion

Redshank typically nest in mid and upper saltmarsh areas where the vegetation is relatively tall and dominated by grasses like Saltmarsh Grass (*Puccinellia maritima*), Red Fescue (*Festuca rubra*), and Sea Couch Grass (*Elymus spp*) (Thyen & Exo, 2003). However, they also rely on areas with shorter vegetation and patches of surface water (Milsom *et al.*, 2000) and creek systems for feeding.

The North Norfolk saltmarshes are typically middle level marshes with a diverse creek system and frequent shallow saltpans, dominated by a range of species including Sea-purslane (*Atriplex portulacoides*), Common Sea-lavender (*Limonium vulgare*), Sea Arrowgrass (*Triglochin maritima*), Sea Plantain (*Plantago maritima*) and grasses including Saltmarsh Grass, Creeping Bent (*Agrostis stolonifera*) and Red Fescue. There are some areas of both higher saltmarsh and pioneer/low marsh. While none of the North Norfolk saltmarshes are grazed by livestock, grazing by Brent Geese, Chinese Water Deer and Muntjac Deer maintains a diversity in vegetation height and structure, notably with open grazed areas with pools (See Photograph 1).



Photograph 1. Saltmarsh at Morston.

Between 2011 and 2024, there was a notable decline in density across the sample plots, indicating that North Norfolk is not immune to the nationwide reductions in saltmarsh breeding Redshank recorded in the 1996 and 2011 surveys (Brindley *et al.*, 1998; Malpas *et al.*, 2011). While these changes may reflect a true population decline, they could also suggest that birds are relocating to other areas. However, the fact that these declines have occurred in what appears to be the most suitable habitat is concerning, indicating that habitat condition may not be the primary driver in North Norfolk. Instead, other pressures such as disturbance, high-tide flooding, and predation, may be playing a more significant role. Heavily disturbed saltmarsh, for example, may have more trampled areas and reduced grazing by Brent Geese. Dog walking may be particularly problematic where dogs can roam freely across the saltmarsh and into creeks, disturbing wildlife. These factors have not been assessed in detail, but a subjective conclusion was that the lower lying and more disturbed marshes had fewer breeding birds. As our survey confirms that North Norfolk continues to support a nationally important population of Redshank, it is crucial to better understand and mitigate the threats to their breeding success in this landscape.

Grazing has been identified as a contributing factor to Redshank declines on some UK saltmarshes, but in North Norfolk, where the habitat mainly consists of middle level saltmarsh with no domestic stock grazing management, this issue may be less relevant. While low-intensity livestock grazing can help maintain a suitable vegetation structure in some areas, in Norfolk, this role appears to be fulfilled by abundant Brent Geese, along with Chinese Water Deer and Muntjac Deer.

The estimated productivity (GTS) of 32.3% is regarded as insufficient to sustain a stable Redshank population. However, the recording of alarming adults was noticeably variable between sites and days and may not be accurately recording productivity. Factors such as human (and dog) disturbance and predation may be contributing to low breeding success, although further detailed site assessments are needed to confirm these impacts. Climate change, notably sea level rise, is also an important factor in breeding success. In recent years, high spring tides during the breeding season are likely to have reduced productivity. A study by van de Pol *et al.* (2024) in the Wadden Sea showed that coastal habitat quality is

already declining for shorebirds due to increased nest flooding because of sea-level rise and that shorebird population collapses are projected.

However, the conditions in 2024, with an early pre-breeding season high spring tide leaving a significant amount of water on-site, creating ideal feeding conditions, followed by no exceptionally high tides during the entire breeding season, seemed to be favourable for breeding success.

The additional counts of 114 pairs of Redshank on coastal grazing marsh is important. These birds are just 'over the sea wall' from the saltmarsh birds and movement was noted between the two habitats. Comments from site managers suggested that in years when high spring tides flood out the saltmarsh, birds will move over the wall onto grazing marsh to nest. Further field work and research would be useful in building understanding of the factors influencing these issues and breeding success.

The 292 pairs of Oystercatcher recorded is again the first time all saltmarsh in North Norfolk has been surveyed for this species, so there is little data to compare this with. However, in 1985, Oystercatcher were recorded on the sample plots with a density of 17.0 pairs per km² (Rooney & Eve, 1993). This compares to a density of 18.7 prs per km² in this survey. Many Oystercatcher will nest on coastal habitats other than saltmarsh, with a total of 401 nests recorded along the north coast in 2007. The limited data suggests that North Norfolk may well be one of the most important areas for Oystercatcher in England.

5. Conclusions

This survey represents the first comprehensive assessment of saltmarsh as breeding Redshank habitat along the North Norfolk coast. Using the 2016 UK estimate of 22,000 breeding pairs of Redshank (Woodward *et al.*, 2020), the North Norfolk coast supports 2.7% of this population —a figure that rises to 3.2% when coastal grazing marshes are included. Focusing exclusively on saltmarsh habitat, North Norfolk supports nearly 5% of the estimated Great Britain population and 6% of the English population, based on 2011 estimates of 11,946 pairs and 10,086 pairs respectively. These figures highlight the vital importance of this area for Redshank conservation.

Trends within the sample survey plots suggest a concerning decline since the last survey in 2011, after a period of increase. Key factors in this recent decline may be climate change (increasing sea levels and spring flooding), disturbance by people and dogs, and predation. Productivity in 2024 appeared to be low, although the habitat conditions seemed good. What measures might we consider to benefit these Redshank populations?

It is clear that mitigation is now urgently needed to boost the resilience of marshes or provide flood-safe habitat elsewhere. A forward-looking approach may be to focus on coastal grazing marsh, either through better management of existing sites or re-creating/restoring more habitat. This will aim to attract Redshank 'over the sea wall' into safer habitat and may be the best solution to combat the impact of sea-level rise in the short term.

Increasing saltmarsh habitats may also benefit Redshank populations. Managed realignments around the coast delivered largely by the Environment Agency have resulted in the creation of new areas of intertidal habitat and saltmarsh. Although these areas are attracting territorial Redshank, densities vary from site to site, as the development of suitable vegetation and structural complexity is heavily influenced by the site's initial elevation. In some cases, this process may occur relatively quickly, while in others, it could take up to 100 years to reach the ideal conditions for Redshank. To accelerate this development, improved design in these projects could help provide better habitat for breeding Redshank, for example by incorporating higher areas of habitat for nesting and enhancing feeding opportunities in pools and creek systems.

Finally, where possible, access should be restricted on key saltmarsh areas during the critical spring season, and at a minimum, dogs be kept on a lead at this time, with clear signage displayed to alert visitors to the importance of the site. The most important sites could consider seasonal wardening.

To further develop a conservation strategy for breeding Redshank in North Norfolk, a more detailed assessment focusing on the impact of sea-level rise, human and dog disturbance, and predation, would be beneficial, as well as assessment of potential grazing marsh or realignment opportunities over the sea wall. Understanding these factors is crucial for addressing the challenges to Redshank breeding success and improving habitat management along the coast.

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