Texel, November 2017

Research on Bar-tailed Godwits *Limosa lapponica*

In 2001 the Royal Dutch Institute for Sea Research (Royal NIOZ) launched a study on the ecology of the bar-tailed godwit. In addition to the mainly shellfish eating red knot *Calidris canutus*, which we have been studying since the late eighties, we want to learn more about the ecology of a species whose food consists mainly of bristle worms. In May 2001 a project started with color-rings on bar-tailed godwits in the Dutch Wadden Sea and the Banc d'Arguin in Mauritania, one of the major wintering areas of the species in Western Africa. Every year, birds are caught and ringed by ringers of VRS Castricum (on the Dutch North Sea coast), VRS Calidris on the island Schiermonnikoog and wilsterflappers Joop Jukema, Catharinus Monkel, Jaap Strikwerda and Bram van der Veen. These wilsterflappers are ringing on the islands of Texel, Terschelling and Ameland and catch hundreds of bar-tailed godwits in the meadows each spring. They do this with a traditional catching method that they used in the past to catch golden plovers for their income (wilsterflappen). Waders are also caught by the NIOZ with mist nets in the periods around the new moon in the Wadden Sea and in Mauritania.

The color ring combination consists of four color-rings and a flag (a ring with a kind of streamer). The flag colors that have been used since 2001 are shown in Figure 2 and are in chronological order, Yellow (Y), Red (R), Lime (L) and Black (N). There are two color rings on each lower leg (the tarsus) with a flag in one of eight possible positions (see Figure 1). Each bird also carries a metal ring, this is not part of the color combination.

Since 2014, black flags are used in combination with 4 color rings, the colors used are black (shorthand N in accordance with international agreements for color ringing), Red (R), Yellow (Y), green (G) and Pale blue (P). A bar-tailed godwit with a red over a yellow ring on the left leg and with a black flag above two green rings on the lower right leg is quoted as N4RYGG. First, the position of the flag is noted and then the color-rings from top to bottom, first for the left leg (of the bird) and then for the right leg.

Since the launch of black flags, we have used a unique flag position for each catching area. This means that you can recognize where a bird was ringed from the position of the flag. N1 is used on Texel, N2 in Mauritania, N3 on Terschelling, N4 in Castricum, N5 on Ameland and N6 are birds that are caught with mist nets on Griend or Schiermonnikoog. N7 and N8 are not yet used.

Observations of bar-tailed godwits can be sent to shorebirds@nioz.nl describing the color-ring combination, the observation date and location. Additional information that we would like to receive are: the type of terrain, the flock size and if possible, the ring density (the number of color-ringed individuals and the total number of observed birds) and the plumage (summer or winter plumage; if possible expressed as a percentage).

In the early years of the study color-rings were made of a plastic named Darvic. However, currently we are using a different material that has the properties of Plexiglas. These rings do not have eternal life and are often shorter than the maximum life of a bar-tailed godwit. This means there are incomplete combinations existing as a result of ring loss and some rings may be strongly faded as a result of ultraviolet light. We would also like to receive observations of birds with incomplete color-ring combinations, so we can get an idea of the amount of ring loss. For birds with incomplete ring combinations, it is important for us to know the sex. It is easy to see the sexes between the birds in size (males are smaller than females) and plumage, especially in spring when the males get a reddish color.

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The study on bar-tailed godwits has provided us with a lot of information on their feeding ecology and area use in the Wadden Sea. In combination with the extensive benthic sampling program Sibes, which started in 2008, we have been able to get a better understanding of the food landscape for birds. For this program the annual distribution of benthic life is sampled on almost all the tidal mud flats in the Dutch Wadden Sea (covering over 4500 sampling stations). In 2014 Sjoerd Duijns completed his PhD-thesis on the feeding ecology of bar-tailed godwits under the title "Sex-specific foraging; the distributional ecology of a polychaete-eating shorebird", his thesis is available on the website of the Waddenacademie (http://www.waddenacademie.nl/en/science/phd-theses/). For more information on our work you can also visit the website of Metawad (www.metawad.nl) and the NIOZ (www.nioz.nl).

With best regards of the NIOZ shorebirds team.

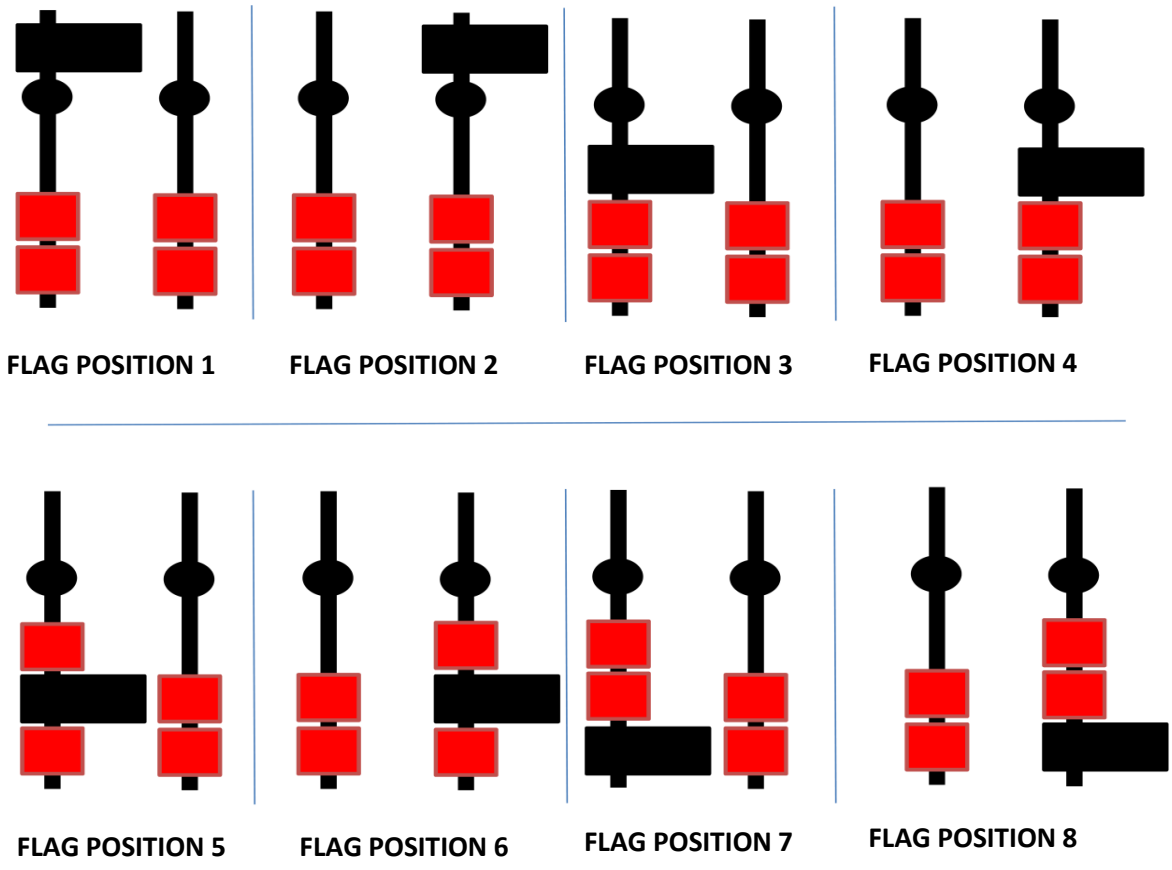

Figure 1 Possible flag positions

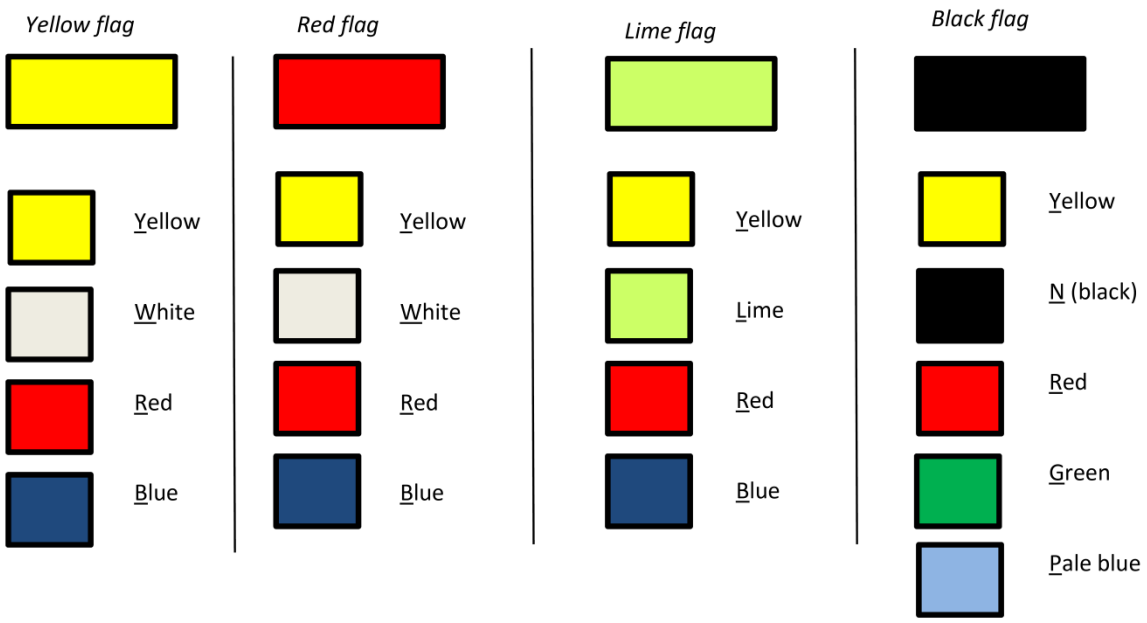

Figure 2 used color-rings for every flag color, currently we are using black flags.

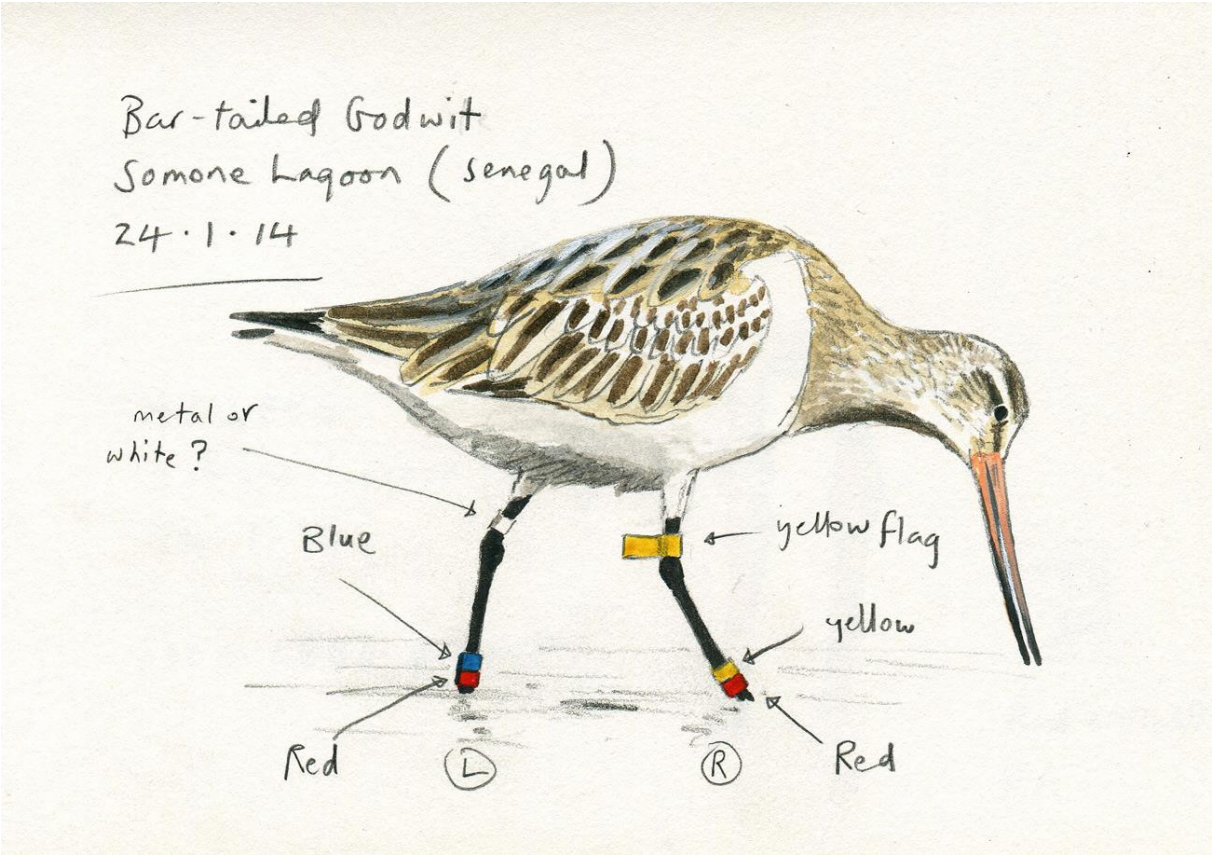

Figure 3 An example of a color-ringed bar-tailed godwit, Y2BRYR. This bird is observed and drawn in the Samone Lagoon in Senegal on 24 January 2014 by John Wright.