2 Photographs of animals in flight

Challenging in many ways

This chapter will deal with several important aspects that need to be considered when creating exciting and insightful visual material. Photographs of flight are usually "action photographs" that require quick reaction. The wings of insects move so rapidly that they can only be "frozen" over fractions of milliseconds. In addition, flying animals are constantly changing their distance from the camera, which makes it more difficult to maintain focus.

Not clumsy at all

Almost like "dinosaurs"

This image of a brown morph of the red-footed booby (*Sula sula*) as it takes to flight might look scary. Its beak is, in fact, an effective weapon. However, the "story behind this photograph" goes as follows:

Trusting

This bird offered the photographer an impressive and touching performance on board a dive boat: After 10 minutes of "mutual communication" from a short distance (50 cm – the minimum distance of the camera lens) the bird flew a final "lap of honour" and twisted for a noisy "farewell" before it left. Without a doubt, the bird had established an empathic connection with the photographer, who took the decision on this same day to include the bird "in this book".

Full speed with crescent-shaped wings

Possibly record-breaking

Common swifts *Apus apus* are among the fastest flying animals on this planet. They superficially resemble swallows even though they are not close relatives. These resemblances are due to convergent evolution. Common swifts travel long distances during migration. During breeding season from early May to early August, they like to stay in Central Europe. They then fly to their winter habitat in Africa, usually south of the Equator.

Motion blur

The common swift reaches a speed of 5-14 m/s in gliding flight, 11-28 m/s in flapping flight, and 40-60 m/s (more than 200 km/h!) when it takes a playful dive. The birds shown in the photograph flew at about 20 m/s. That is to say, it takes them 1/2000 s to move 1 cm. So, even when captured with short exposure time, these swifts are likely to produce motion blur, unless the camera tries to "move along with them".

This common swift was hunting too close above the surface of the sea and landed on the water. This would have been its death sentence if it had not been for an eager photographer who witnessed the situation and saved the bird. A few minutes later, the rescued swift was back with its flock …

"Seagull photography"

Seagulls as constant companions of ships

Passengers of pleasure boats often throw food into the water (to the photographer's delight), in order to attract birds. Right-hand side: A seagull throws itself relentlessly into the water to catch fish offal that had been thrown into it. The commotion, however, has attracted another guest: The seagull has caught the attention of a 3-meter-long great white shark.

Sharks like to hunt for seagulls on the surface

This is a phenomenon that has often been observed. Tiger sharks actually travel to the lagoons of the remote Hawaiian Islands at the exact same time when albatrosses are ready to fledge, in order to catch some of the chicks that land on the water. It takes some experience to grab their prey successfully, though, because the bow wave that forms when the predator moves through the water may push the prey away from the shark's jaws. When birds and sharks hunt for schools of sardines at the South African coast ("sardine run"), the birds are not at risk, as both hunters focus on the sardines.

http://en.wikipedia.org/wiki/Sardine_run

Great white shark (*Carcharodon carcharias*)

Vertical lightning start

The bottom picture was taken only a fraction of a second before the picture at the top: The seagull becomes aware of the critical situation and gets off to a lightning start. The way the water rolls off the bird's body shows that it must have taken off vertically.

Fighting rivals ...

In the land of a thousandth of a second

If one wishes to take photographs of flying insects, certain techniques need to be practised. One possible method of practice could be to keep taking photographs of relatively common animals as they are encountered. Wasps and flies might be suitable animals for such practice. As time passes and more photographs of these animals are taken, one will begin to discover actions captured by these photographs that one would not have noticed with the naked eye. A wasp beats its wings three hundred times a second. This rapid movement can be captured by using flash. However, quick series of photographs cannot be shot in such a way. An exposure time of 1/8000 of a second can "freeze" the wasp's wings, while its surroundings will appear normally exposed.

Solitary and eusocial wasps

The family Vespidae is divided into a group of wasp species that live solitary lives and feed their larvae on their own and a second group of social wasps that form small or large colonies. Among the latter are also some of those dreaded wasps that are common in various regions of the world, such as the European hornet.

Nachtigall, W., Nagel, R. **Im Reich der Tausendstel-Sekunde** *Gerstenberg, Hildesheim (1988)*

... without a stinger

The vibrant cycle of the year

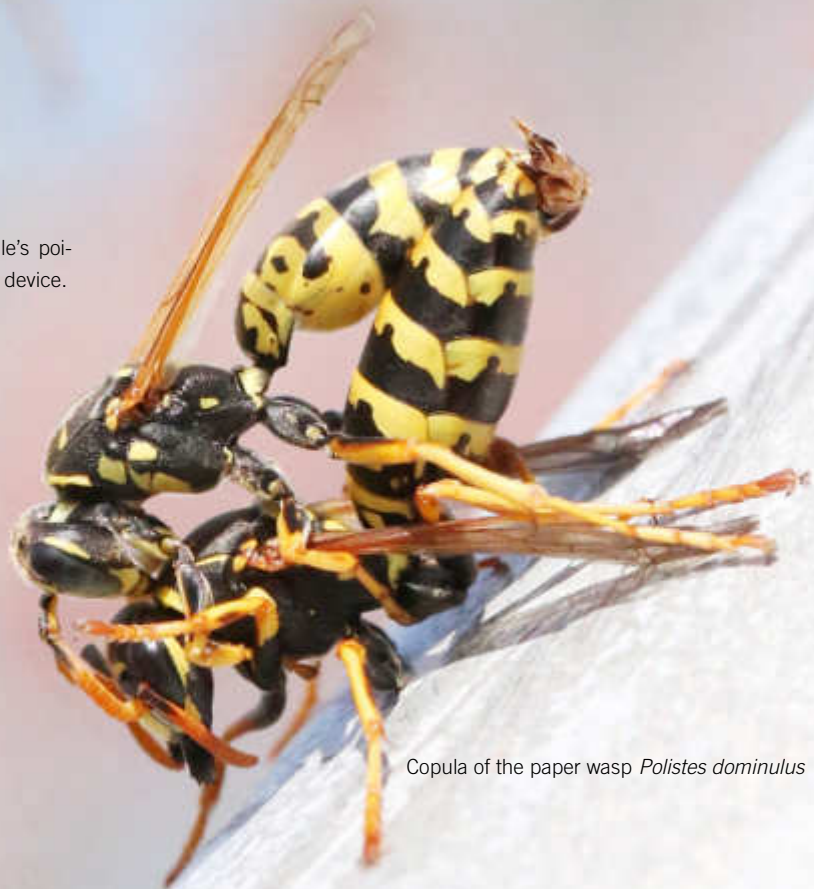
Wasp queens hibernate before starting a new colony in spring. In midsummer, this new colony will grow considerably in size as unfertilized eggs produce male offspring and well-fed female larvae develop into new queens. Male and female wasps then leave the nest and mate. In autumn or early winter, the whole colony dies off, leaving only the newly fertilized young queens to hibernate and survive.

"Variants" among paper wasps (*Polistes*)

Several females, usually sisters, group together to build a small nest. These nests are wide open and attached to a plant stem or similar structure. What ensues is a kind of battle over which one of the females will take over the role as queen and which will merely serve as workers in the new colony. Only one female can win and become the sole queen of a colony. And it is only this one queen that lays eggs in the colony. Once again, a sexual generation of male and female wasps will emerge by late summer to mate in bushes or more exposed places. Competition is fierce, with male wasps engaging in aerobatic battles over the possession of females. The successful mating of two European paper wasps (*Polistes dominula*) is shown on this page. The male wasp in the background goes empty-handed.

Only females sting!

Male wasps and bees never sting. The female's poisonous stinger is actually a modified egg-laying device.



Copula of the paper wasp *Polistes dominulus*