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Titolo	Dragonfly Behavior : Discovering the Dynamic Life of an Ancient Order of Insects // by Georg Ruppell, Dagmar Hilfert-Ruppell
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Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Appearance The construction plan as a high-performance aircraft; structure of the body and streamlined distribution of the body masses -- Eyes Huge compound eyes enable all-round vision and slow-motion vision -- Wings Large ultralight wings with bionic tricks. bionic observations of the wings -- Flight artists Moving all four wings independently of each other leads to breathtaking maneuvers -- Turning flight -- Extreme bank angles and wing kinematics are described -- Colored wings -- flap differently Species with colored wings move them not only to fly, but also to communicate. They have

therefore changed their flapping modes -- Catching prey -- Unique catching of flying insects in the air with specially equipped catching legs -- Fighting Never before seen images document collisions, rollovers and injuries. The legs with claws and bristles as well as the mouthparts have proven to be the main weapons -- Defense of males Females mitigate sexual conflicts with sophisticated defenses. At high densities, males always and everywhere try to catch females and bring them to mate, females fly better and often fight successfully -- Interspecific discord in competition for territories or perches also occurs between species. An unusual behavior was documented: a male damselfly carries a tandem of feather dragonflies away with its legs -- Colors Dragonflies often look very colorful. These colors are caused by light refractions on structures or by color pigments -- Threatening is carried out by presenting wings or by a large number of threatening flights. It is energetically more favorable than fighting and reduces the risk of injury. Males display courtship with colored wings. In the case of damselflies, the flapping frequency is doubled and a species-typical phase relationship of the fore and hind wings is used. This provides females with information for their choice of mate (female choice) -- Mating of damselflies gave famous data on genegoism, as the males almost completely remove the seed of a predecessor from the female and replace it with their own -- Oviposition is a dangerous activity for damselflies and some damselflies that bore their eggs into plants. More modern groups drop the eggs from flight. Some females dive under water to lay their eggs. At high densities, alternative methods are used to avoid the males -- Larvae are ambush hunters under water with a range extension of the unique capture mask, which can reach very high speeds -- Hunting More than half of them are eaten by frogs and birds when they hatch and lay their eggs. Egg-laying dragonflies flee sideways in order to get as quickly and far away from the frogs as possible. Hatching often takes place at night and in groups. This reduces the risk of being eaten -- Hatching metamorphosis with risk of accident, as the moist body tissues of the larval skin and the flying insect have to separate before drying sets in. Hatching accidents are not uncommon -- Maiden flight is an important moment in which the innate flight pattern must function immediately -- Ecological significance -- Response to climate change.

Sommario/riassunto

This book is the first to allow you to experience the details of the ultra-fast lives of dragonflies, these large, beautiful flying insects, through an abundance of unique snapshots and image sequences. Dragonflies are world champions of flight, bionic wonders; they reveal much about the mysteries of evolution. We witness their social interaction, and appreciate their success over three hundred million years. Dragonflies - what an evocative name! - are easy to observe, even for beginners. About 80 species live in Germany, and every body of water is home to a few. They are not shy, do not sting and often come very close. Perhaps you will fall in love with dragonflies - just like the two authors who have been studying them for over 30 years. With the knowledge in this book, you will look at dragonflies in a completely novel way. About the Authors Georg Ruppell was Professor of Behavioral Ecology at the Technical University of Braunschweig and has supervised over 300 studies with his working group, many of them on dragonflies. It was the quick-reaction training he got through his teenage sporting activities, he finds, that helped him to be constantly alert to the abrupt flight movements around him. He was the first biologist in the world to take up the field study of bird flight using slow-mo, and subsequently apply his expertise to dragonflies. He met his wife Dagmar Hilfert-Ruppell on a research trip to the dragonflies of Japan. Dagmar Hilfert-

Rüppell has been studying and filming dragonflies for 30 years. She is particularly fond of damselflies, about which she wrote her doctoral thesis. She has developed infinite patience when filming to capture new behaviors in close-up. She is also the inspired driving force behind their numerous trips all around the world. .
