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Recognition of individuals and classification of habitats using the named individuals can be done at three levels of measurement: nominal, ordinal and interval. At the nominal level, most habitats shared the majority of species. However, at the ordinal level the rank-sequence of ants varied considerably from one habitat to another. The interval level provided far greater sensitivity, and by using biplots (a form of principal components analysis) habitats grouped according to overall physiognomy. Biplots also illustrated that all but the most abundant ants were habitat-sensitive. Further, there was a positive correlation between the number of habitats in which an ant occurred and its overall abundance.

Pest ants are the dominant ones by definition. This dominance results from a mutualism between the ants nesting in the ground and honeydew-producing insects in the tree canopy. The models illustrated that the heart of ant management should involve breaking the ant-homopteran mutualism. Habitat modification on its own would not be appropriate. Trunk banding is one ecologically sensible and economically feasible way to manage ants in citrus.

EFFECTS OF AN ARID ENVIRONMENT ON CARRION FEEDING INSECTS

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Three sites were chosen in the Central Namib Desert around Gobabeb to study the effects of an arid environment on carrion feeding insects. Gemsbok carcasses of known time of death (weighing 91, 125, 77 kg) were placed in enclosures on the gravel plain, plinth area of a sand dune, and in the dry vegetated Kuiseb river bed. The seral succession of the carcasses was greatly accelerated by this environment.

Generally for all sites, the initial stage of carcass decomposition lasted for one day, the bloat stage for one day, the advanced bloat stage for two days, the wet phase for three days and the dry phase began seven days after the carcasses were placed in the desert and corresponded to the time when the maggots left the

carrion. It was estimated that 70% of the biomass of the carcass was recycled by the dipteran carrion feeders at this time.

Only the major carrion feeders were considered. It was observed that the Sarcophagidae were first to colonize the carcass followed by *Chrysomya marginalis* and *Chrysomya albiceps*. Their life cycles under arid conditions were as follows: the egg stage lasted for + 24 hours, followed by the actively feeding stage of the maggots which lasted for + 4 days, a gut clearing stage lasting for + 3 days, a wandering phase lasting + 1 day and a pupal period of 3 days.

Low humidities and high temperatures of the Namib Desert, especially surface ones, were determined at each stage of the life cycle. Egg masses often succumbed if not housed deep within a natural orifice or under the carcass. Actively feeding maggots were exposed to internal carcass temperatures during the day of 39 degrees C and their concomittant feeding activity increased the temperature to lethal levels of 45 degrees C, at which time unique behavioural thermoregulation was observed. Also, after feeding, the wandering larvae were often trapped on the surface of the sand and thermal death ensued. Tremendous mortality was noted when emergence from the pupal case beneath the sand overlapped with increasing sand temperatures during the hottest time of the day.

Adaptations or the lack thereof to the harsh climatic conditions of the Namib Desert are further discussed and compared with those from temperate regions.

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