JAFFÉ 1998, FERNÁNDEZ & SENDOYA 2004); some *Acromyrmex* species occur as far as 44° south latitude (FARJI BRENER & RUGGIERO 1994). A population of *Acromyrmex octospinosus* introduced around 50 years ago occurs on the Caribbean island of Guadeloupe (MIKHEYEV & al. 2006).

Leafcutters can be found in a range of habitat types, including deep wet forests, forest clearings and edges, savannahs, cerrados, and deserts that receive seasonal rains. Some *Acromyrmex* species occur as high as 2500 m in elevation (FARJI BRENER & RUGGIERO 1994).

Colony size and social structure: Among the largest of all ant colonies, mature *Atta* colony sizes are measured in millions of individuals – in *A. sexdens rubropilosa* as many as eight million (FOWLER & al. 1986b) – while mature *Acromyrmex* colonies, depending on the species, may contain 17,500 to 270,000 workers (FOWLER & al. 1986b, WETTERER 1995). Worker-queen polymorphism in *Acromyrmex* is significantly more pronounced than in *Trachymyrmex* species and significantly less pronounced than in *Atta* species, i.e., it is intermediate between the two groups. Some *Acromyrmex* species in some environments may have as few as two discrete physical worker subcastes (WETTERER & al. 1998), whereas *Atta* species typically possess a broad continuous spectrum of worker sizes that perform an estimated fifty or more discrete tasks (OSTER & WILSON 1978). In both *Acromyrmex* and *Atta*, smaller subcastes tend the brood and garden, larger subcastes forage and cut vegetation, and, in *Atta*, a very large soldier subcaste attacks and repels invaders (WEBER 1972, HÖLLDOBLER & WILSON 1990).

Mating and nest-founding behavior: *Acromyrmex* and *Atta* mating flights are seasonally timed, generally occurring after the first substantial rain of the wet season (*Acromyrmex*: e.g., DIEHL-FLEIG 1993, JOHNSON & RISSING 1993; *Atta*: AUTUORI 1956, MOSER 1967, FERNÁNDEZ-MARÍN & al. 2004). Queens of both genera are known to mate with multiple males (KERR 1961, CORSO & SERZEDELLO 1981, TSCHINKEL 1987, JOHNSON & RISSING 1993, BOOMSMA & RATNIEKS 1996, FJERDINGSTAD & BOOMSMA 1997, 1998, FJERDINGSTAD & al. 1998, MURAKAMI & al. 2000, VILLESEN & al. 2002) and to store more than 100 million sperm (MOSER 1967). After mating and usually before nest-founding, leafcutter-ant queens shed their wings. Foundresses of most *Acromyrmex* species and of all *Atta* species excavate a chamber in the soil. Typically only one queen establishes a nest (haplometrosis), but pleiometrosis has been observed in *Atta texana* and *Atta mexicana* at very low frequencies (ECHOLS 1966, MINTZER & VINSON 1985, MINTZER 1987) and at high frequencies in some populations of *Acromyrmex versicolor*, in which most co-foundresses are not closely related (RISSING & al. 1986, HAGEN & al. 1988, RISSING & al. 1989). Laboratory experiments and field observations suggest that pleiometrosis may also occur in *Acromyrmex striatus* at low frequencies (DIEHL-FLEIG & DE ARAUJO 1996). It has been hypothesized that pleiometrosis occurs in these species because they occur in environments where suitable nesting sites are limited and / or where risk of predation is high (ECHOLS 1966, RISSING & al. 1986, MINTZER 1987, RISSING & al. 1989, DIEHL-FLEIG & DE ARAUJO 1996).

Foundress *Acromyrmex* and *Atta* queens nourish their incipient fungus gardens with fecal droplets and their first broods with trophic eggs. As is typical for most Attini, *Acromyrmex* queens found their nests semi-claustrally, foraging for substrate with which they additionally nourish their gardens (HUBER 1905, WEBER 1972, RISSING & al. 1986, CORDERO 1963, DIEHL-FLEIG & LUCCHESE 1992, WHEELER & BUCK 1995, FERNÁNDEZ-MARÍN & al. 2003). In contrast, *Atta* queens found their nests claustrally, never leaving the nest chamber (HUBER 1905, BRUCH 1919, 1921, AUTOURI 1942, WHEELER 1948, CORDERO 1963, WEBER 1972, MARICONI 1974, WEBER 1982, RISSING & al. 1986, MINTZER 1987, DIEHL-FLEIG & LUCCHESE 1992, FERNÁNDEZ-MARÍN & al. 2003). Thus, until the emergence of the first adult workers 40 - 60 days after nest-founding, the *Atta* queen, garden, and brood must survive and grow using energy and raw materials derived solely from the queen's catabolized flight muscle and fat reserves, accounting for the two- to ten-fold greater weight (400 - 800 mg) of *Atta* queens relative to other attine queens (MINTZER 1987, 1990, FERNÁNDEZ-MARÍN & al. 2004, SEAL & TSCHINKEL 2008).

Garden placement by foundresses differs between the two leafcutter-ant genera. *Acromyrmex* foundresses attach the incipient garden to elevated roots or to the chamber ceiling, presumably to protect it from exposure to soil pathogens (FERNÁNDEZ-MARÍN & al. 2003, 2004; U. Mueller, pers. comm.), whereas *Atta* foundresses place the incipient garden (and their eggs) directly on the soil floor (HUBER 1905, AUTOURI 1942, MARICONI 1974, WEBER 1982, MINTZER 1987, FERNÁNDEZ-MARÍN & al. 2003, 2004).

Nest architecture: Some *Acromyrmex* species locate their single large gardens under rotten logs or other large objects (e.g., some nests of *A. octospinosus*). "Mound-building" *Acromyrmex* species (e.g., *A. heyeri*) locate their similarly large gardens in a single superficial depression in the surface of the soil covered over by an elevated mound of litter and debris (BOLLAZZI & al. 2008). A few species locate their gardens above the ground in tree crotches or on the upper sides of horizontal llianas, likewise covering them over with accumulated litter (e.g., *Acromyrmex hystrix*) (WEBER 1946; T.R. Schultz, unpubl.). Soil-nesting *Acromyrmex* species, in contrast, divide their fungus gardens among a dozen or more excavated subterranean chambers of varying depth (GONCALVES 1961, 1964, FOWLER 1979, VERZA & al. 2007, BOLLAZZI & al. 2008). *Atta* nests are invariably built in the soil and can be extensive, consisting of many hundreds or over a thousand subterranean chambers, each containing a garden about the size of a cabbage (STAHEL & GEIJSKES 1939, WEBER 1946, JACOBY 1950, MOSER 1963, JONKMAN 1980, MOREIRA & al. 2004a, b). Such nests alter the chemical and physical properties of the soil and have significant ecological effects, e.g., on nutrient cycling (COUTINHO 1982, HAINES 1983, MOUTINHO & al. 2003, WIRTH & al. 2003). At the surface, *Atta* nests may occupy great areas of excavated earth containing many entrance and exit holes and surrounded by multiple outward-radiating trunk trails, built and kept free of debris by the ants. In some species, including *Atta laevigata* and *A. vollenweideri*, the nest may be connected by underground tunnels to openings many scores of meters away, possibly to protect foragers from predators or the sun. *Atta* nest architecture incorporates a ventilation system in which air enters through openings at the nest periphery and exits through openings at the center (JACOBY 1939, STAHEL & GEIJSKES 1939). The mechanism driving air flow was long thought to be thermal convection, but, in a study of *Atta*