

## World Heritage Sites

Protected  
Areas and  
World  
Heritage



## TALAMANCA RANGE-LA AMISTAD RESERVES / LA AMISTAD NATIONAL PARK COSTA RICA & PANAMA

*This Central American site is a uniquely biodiverse land-bridge where the faunas and floras of North and South America have been able to intermingle and interbreed. It retains remnants of Quaternary glaciation and is covered by the largest remaining natural forest in Central America. It is the home of five Indian tribes and benefits from close cooperation between Costa Rica and Panama.*

*Threats to the site: Two dams have been built in Panama, disturbing the property and an aquatic species migratory corridor, and over a dozen more dams are planned.*

### COUNTRIES

Costa Rica and Panama

### NAME

Talamanca Range-La Amistad Reserves / La Amistad National Park

### NATURAL WORLD HERITAGE TRANSBOUNDARY SERIAL SITE

- 1983: Costa Rica: Five contiguous Costa Rican protected areas inscribed on the World Heritage List under Natural Criteria vii, viii, ix and x.
- 1988: Rio Macho Reserve added; 1993: Tapanti National Park added;
- 1990: Panama: La Amistad National Park inscribed on the World Heritage List as an extension, under Natural Criteria vii, viii, ix and x.

### STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

### INTERNATIONAL DESIGNATIONS

- 1982: La Amistad National Park (Costa Rica) with five protected areas plus four Indian reserves designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme (584,592 ha);
- 2000: La Amistad National Park (Panama) designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme (655,558 ha).
- 2003: The *Turberas de Talamanca* designated a Wetland of International Importance under the Ramsar Convention (192,520 ha).

### IUCN MANAGEMENT CATEGORY

La Amistad (Panama) National Park:	II National Park
La Amistad (Costa Rica) National Park:	II National Park
Chirripó National Park:	II National Park
Barbilla National Park:	II National Park
Hitoy Cerere Biological Reserve:	Ia Strict Nature Reserve
Tapanti National Park:	IV Habitat/Species Management Area

Rio Macho Forest Reserve:  
Las Tablas Protective Zone:

VI Managed Resource Protected Area  
VI Managed Resource Protected Area

## **BIOGEOGRAPHICAL PROVINCE**

Central American (8.16.04)

## **GEOGRAPHICAL LOCATION**

This complex of parks and reserves lies across the Panamanian/Costa Rican border along the length of the foothills and mountain range of the Cordillera de Talamanca, which runs down the centre of the isthmus. It is located between 8° 44' N to 10° 02' N and 82° 43' W to 83°44' W.

## **DATES AND HISTORY OF ESTABLISHMENT**

### **Costa Rica:**

- 1964: Rio Macho Forest Reserve established under Forestry Law 4465A;
- 1975: Chirripó National Park established by Congressional law 5773;
- 1978: Hitoy Cerere Biological Reserve established by executive decree 8351A;
- 1979: Joint declaration by Costa Rica and Panama of intent to establish La Amistad International Park;
- 1981: Las Tablas Protective Zone established;
- 1982: Barbilla Biological Reserve established; 1997: upgraded to National Park;
- 1982: La Amistad declared a Costa Rican National Park and declared a UNESCO Biosphere Reserve;
- 1982: A Transboundary Protected Area declared and a bi-national Technical Commission set up to administer it; 1988: Rio Macho Reserve added;
- 1992: Tapanti National Park established; the transboundary agreement was ratified;
- 2000: Declared part of a UNESCO Biosphere Reserve;
- 2003: The Turberas de Talamanca Ramsar Wetland designated.

### **Panama:**

- 1982: A Transboundary Protected Area declared and a bi-national Technical Commission set up;
- 1988: The La Amistad International Park agreement confirmed by Panamanian Directive 021-88;
- 1990: La Amistad declared a National Park;
- 2000: Declared part of a UNESCO Biosphere Reserve.

## **LAND TENURE**

Costa Rica: 95% of the core area including Rio Macho Forest Reserve and Las Tablas Protective Area is state property; the remaining 5% is small scattered farms. Las Tablas also has sizeable private holdings of 90% undisturbed forest, where changes in land use are prohibited. The Park is buffered by the indigenous territories of seven Indian tribes, though some of these lands have been sold to colonizers. Management is by the Costa Rican National Park Service of the Ministry of Natural Resources, Energy and Mines (MIRENEM).

Panama: Nearly all the area is state-owned, managed by the National Institute of Renewable Natural Resources (INRENARE) and National Directorate for Protected Areas and Wildlife. The Park is buffered down most of its eastern side by the large Palo Seco Protected Forest, an Indian reserve and a former military jungle training area. To the southwest it abuts the Volcan Baru National Park.

## **AREA**

567,845 ha (UNESCO, 2006). The figures below total 568,627 ha. The WDPA total differs markedly.

La Amistad National Park (Panama):	207,000 ha
La Amistad National Park (Costa Rica):	193,929 ha
Rio Macho Forest Reserve:	69,604 ha
Chirripó National Park:	51,150 ha
Las Tablas Protected Area:	19,602 ha
Barbilla National Park:	12,098 ha
Hitoy Cerere Biological Reserve:	9,154 ha
Tapanti National Park:	6,080 ha

## ALTITUDE

50m to 3,819m (Cerro Chirripó).

## PHYSICAL FEATURES

The Cordillera de Talamanca is the highest and wildest non-volcanic mountain range in Central America. It lies at the confluence of the Cocos, Caribbean and Nazca plates which caused the orogenesis which formed the land dividing the Pacific from the Caribbean and which still causes earthquakes in the region on average every 2.5 years (Castro *et al.*, 1995). A long period of marine deposition in the shallow surrounding seas until the Middle Miocene was followed during the Plio-Quaternary orogenesis by a period of marine volcanism, with the intrusion of a huge granitic batholith with metamorphic rocks which uplifted the whole area to some 4,000m above sea level. The resulting peneplain was gradually eroded by heavy rainfall, landslides and tremors, creating a steep and rugged topography now an archipelago of island mountain habitats. During the Quaternary, glaciers carved cirque lakes and valleys with sides of over 60° on the slopes of Cerro Chirripó, the only area in Central America to show signs of glaciation. At 3,819m it is the highest point in southern Central America. Cerro Enchandi (3,168m) is the highest peak on the Panamanian side. In Panama the main rivers are the Changuinola, Teribe and Sixaola. Flows between 132-158 cu.m per second have been recorded on these steep rivers, which provide half of Costa Rica's fresh water and invite damming for hydroelectricity. Most soils are poorly evolved, leached by the continual rain.

## CLIMATE

The Park is exposed to both Caribbean and Pacific climatic regimens, which also vary with elevation. Average temperatures range from about 25°C near sea level to -8°C on the highest peaks. The mean annual precipitation varies from 2000mm near the Caribbean coast to 6500mm in some high mountain areas, most falling between May and November when humidity remains high.

## VEGETATION

Costa Rica: The Talamanca Mountains contain the largest remaining natural forest in central America and hold about 90% of Costa Rica's known flora. The species diversity is probably unequalled in any other reserve of equivalent size in the world, due ly to the convergence of the floras of North and South America, the climatic, altitudinal and edaphic variety accentuated by the contrasting aseasonal rainforests of the Atlantic slope with the seasonally dry Pacific slope forests and the cloud forests at high level. It is distributed amongst an archipelago of mountain islands where long isolation has accelerated speciation and endemism. The range has some 10,000 flowering plants, over 4,000 non-vascular plants, approximately 1,000 fern species, 80% of the country's mosses and about 900 lichens. Levels of endemism are estimated at over 30% (Powell *et al.*, 2001).

Tropical rainforest has covered most of the area since the last glaciation, 25,000 years ago. Of the twelve life zones of Costa Rica, at least nine occur in the Park. These include all five altitudinal zones found in the tropics, from lowland tropical rainforest to cloud forest. On high points along the ridge above 2,900-3,100m, sub-alpine *paramo* forests and *Arctostaphylos arbustoides* occur. There are frequent stands of pure oak, *paramo* grassland, lakes of glacial origin and high altitude bogs, four communities not found elsewhere in Central America. The *paramo* on Mt. Kamuk near the border contains the richest and most varied vegetation, after Chirripó, in the entire Talamanca Range and is the only one in Costa Rica that

shows no signs of human intervention. In the high Turberas wetland grow oaks such as black, white and hook oaks *Quercus costaricensis*, *Q. copeyensis* and *Q. corrugata*, with cool peatland species and IUCN red-listed plant genera including *Styrax*, *Magnolia*, *Weinmannia* and *Podocarpus*. Most of the main crest lies within montane rain forest, characterised by dwarf mixed oak forest with tree ferns, heavily covered with bryophytes, ferns, bromeliads, orchids and other epiphytes. The lower montane rainforest between 2,500m and 1000m is more mixed.

Panama: The Park is the largest remaining block of virgin forest in Panama and is relatively intact. The whole area contains the same, probably unequalled, diversity of plant genera, families and species. Nine life zones are found, four only on the Caribbean slopes - tropical moist forest, tropical wet forest, tropical wet premontane forest, premontane rainforest; and three on the Pacific-facing slopes - lower montane moist forest (found in Panama only), lower montane wet forest and montane wet forest, the largest life zone in the Park. Higher on the slopes above these are wet *paramo* and sub-alpine zones (IUCN, 1990). The montane rainforest is characterised by low mixed oak forest, heavily covered by other plant forms as in Costa Rica. The lower montane rainforest between 2,500m and 1000m is more mixed, including *Podocarpus oleifolius*, *Symphonia poasoana*, the locally threatened *Terminalia amazonia*, *Cedrela tonduzii*, *Ulmus mexicana*, *Clethra lanata*, *Ardisia* sp., *Clusia* sp., *Persea* sp. and *Ocotea* sp. (Patino, 1989). The area is also noted for a recorded extension of virgin oak woodland, with seven species of the genus *Quercus*, previously only recorded in Chiriqui province and Costa Rica. There are 180 recorded endemic plant species restricted only to Bocas del Toro and Chiriqui provinces or to Panama as a whole. The wide range of endemics include 19 species of *Ardisia* four species of *Fleischmannia*, four species of *Chamaedorea*, five species of *Burmeistera*, and eight species of *Hoffmannia* (Patino, 1989). Globally threatened plants include *Justicia refulgens*, *Myrrhidendron maxonii*, *Ilex chiriquensis*, *Chamaedorea linearia*, *Begonia brevicyma*, *Ipomoea chiriquiensis* and *Pilea rugosissima* (IUCN, 1990).

## FAUNA

La Amistad links the World Heritage reserves of Rio Platano and Darién but is more diverse than either. In fact, the Talamanca range is estimated to harbour about 4% of all terrestrial species on earth, the fauna being extremely diverse as a result of past intermigrations between North and South America (IUCN, 1990). Some 30% of its species are endemic to the region. 13 out of the 215 species of mammals, 15-30 of the 600 species of birds, 20 out of the 250 species of reptiles and amphibians and one out of the 115 species of fish are endemic to the Reserve.

Among the mammals are black-crowned Central American squirrel monkey *Saimiri oerstedii* (VU), ornate spider monkey *Ateles geoffroyi ornatus* (EN) and giant anteater *Myrmecophaga tridactyla* (VU). There are abundant signs of lowland tapir *Tapirus terrestris* (VU), in Costa Rica, in Cerros Utyum, Kamuk and Fabrega near the Panamanian border. There are also the Central American tapir *Tapirus bairdii* (EN) and red brocket deer *Mazama americana*. The area is one of the last refuges all the felines of Central America: the jaguar *Panthera onca*, puma *Puma concolor*, ocelot *Leopardus pardalis*, jaguarundi *Puma yagouaroundi* and tiger cat *L. tigrina*. There is a green and black high-altitude viper *Bothrops negriviridis* that has rarely been seen or collected. Some 600 species of birds are recorded, including resplendent quetzal *Pharomacrus mocinno*, bare-necked umbrella bird *Cephalopterus glabricollis* (VU), three-wattled bellbird *Procnias tricarunculatus* (VU), yellow-green finch *Pselliophorus luteoviridis* (VU); black guan *Chamaepetes unicolor*, harpy eagle *Harpia harpyja*, crested eagle *Morphnus guianensis*, solitary eagle *Harpyhaliaetus solitarius*, orange-breasted falcon *Falco deiroleucus*, toucans *Ramphastus* spp. and *Amazilia* spp. hummingbirds. Perhaps few other parks in the world possess such a wealth of fauna.

Some 75% of the migrating birds of the western hemisphere pass over La Amistad, and some 65 local species are altitudinal migrants. Of the 850 bird species reported in Panama, approximately 550-600 are reported to exist in La Amistad, of which 425 species live up to 900m high. At higher altitudes it is estimated that there are up to 40 endemic bird species, making this area one of those with the highest levels of endemism in Central America. The endemic yellow-green finch (VU) occurs here, as does the range of uncommon birds seen in the Costa Rican Talamanca. Of the amphibians, six species are restricted to the Cordillera such as the splendid poison frog *Oophaga speciosa* (EN) and the lizard *Anolis kemptoni*, which is endemic to the country (Patino, 1989). More anolids may exist on the forested Atlantic

slopes of the Sierra de Talamanca which has the second most diverse butterfly fauna in the world, with many species threatened or of restricted distribution, such as *Dalla octomaculata*, *Busiques idothea*, *Oxeoshitus puerta submaculatus* and *Itabalia caesia tenuicornis* (Patino, 1989). The rivers on the Atlantic slope contain many species of migratory fish and shrimp which spawn in the headwaters before returning to the sea.

## **CONSERVATION VALUE**

The protected area comprises the single largest natural forest in Central America, containing several hundred endemic plant species and one of the last major refuges for threatened fauna. The Talamanca range is estimated to harbour almost 4% of all the terrestrial species on Earth. No other protected area complex in Central America contains as many viable populations, species, life zones, or as much altitudinal variation. The Park lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Eco-region, a WWF/IUCN Centre of Plant Diversity, a BirdLife-designated Endemic Bird Area and overlaps a Ramsar wetland and two UNESCO Biosphere Reserves.

## **CULTURAL HERITAGE**

Costa Rica: Archaeological sites are reported along all the major watercourses, but a lack of investigation makes analysis of the human history difficult. Much evidence may yet be found. Excavations on the Pacific slope of Costa Rica near La Amistad have revealed elaborate zoomorphic and anthropomorphic gold ornaments, jewellery and huge symmetrical stone spheres up to two metres round worked over the last 3,000 years. At the time of the Spanish conquest, several Indian tribes inhabited the Talamanca Range. Their numbers, decimated by continual conflict with Spanish settlers and imported diseases, by 1940 totalled only 6,000 living along isolated river valleys in unsettled terrain.

Panama: Pre-ceramic sites of some of the region's earliest human inhabitants dated over 12,000 years old have been discovered near the adjacent Volcan Baru. Such sites are extremely uncommon in Central America. Analysis of polychrome pottery from later pre-Columbian sites has led to the definition of two major cultural phases for the area: the Agua Buena phase, (300 BC to 500 AD), and the Chiriqui phase, (500 AD to the Spanish Conquest). In 1502, Christopher Columbus visited the surrounding province of Bocas del Toro, which was inhabited by a number of indigenous tribes. The first documented mention of these dates from 1564 by Juan Vasquez de Coronado. They were the Guaymis, Dorasques, Changuenas, Teribes, the Seguas, Torresques, Ciceitas, Cabeceras and the Urinamas. The arrival of the Spanish in the 16th century was followed by a series of persecutions, rebellions and missionary evangelising which led to a drastic decline in the native populations and much suffering (Patino, 1989).

## **LOCAL HUMAN POPULATION**

Since 1940 there has been a gradual increase in the numbers of local tribespeople and in legal recognition of their rights to the land. In Costa Rica approximately 10,000 Indians live within the area's boundaries. These are almost the total world population of BriBris and Cabecars, and an important percentage of the remaining Guaymis and Bruncas, groups that have experienced cultural contact in varying degrees for over 400 years, yet retain much of their folklore, language, customs and agricultural, hunting and gathering lifestyles. In Panama some 5,000 Teribe live in 27 communities rearing livestock, practising subsistence farming and horticulture. However, the area is poor and there is pressure from surrounding colonists to encroach on the Park for agriculture. The Nature Conservancy, through its Parks-in-Peril program, is promoting the sustainable farming of cocoa, coffee and other crops.

## **VISITORS AND VISITOR FACILITIES**

Tourism is beginning to develop but where unregulated is already becoming a problem. The development of community-based eco-tourism is being funded by the Parks-in-Peril program and is developing on the Pacific side of the Park in Costa Rica and in the Naso Teribe Indian territory on the north side.

## **SCIENTIFIC RESEARCH AND FACILITIES**

Apart from a number of anthropological surveys, no comprehensive scientific studies were conducted within the Costa Rican area before 1980. There are some research facilities, in particular at Las Cruces

Botanical Garden. La Amistad-Talamanca International Park, Chirripó National Park and Las Tablas Forest Protective Zone are used for field training activities by university students. In Panama the WWF, IUCN and ANCON (*Asociación Nacional para la Conservación de la Naturaleza*) studied the region, species and boundaries in preparation for protective designation.

## MANAGEMENT

Costa Rica: The area is composed of a complex of reserves with various types of legal protection and was only legally protected as a whole relatively recently. The core national parks of La Amistad-Talamanca, Chirripó, Barbilla with Hitoy Cerere Reserve are managed by the Costa Rican National Park Service. The Forest Reserve of Rio Macho was later added and with Las Tablas Forest Protective Zone is managed by the Costa Rican Forestry Directorate. The buffer area consists of the seven Indian reserves of Talamanca, Tayni-Estrella, Telire, Chirripó, Cabagra, Salitre and Ujarras, covering 217,441 ha altogether. These have exclusive rights in perpetuity to their reserve lands which have not been fully exercised, and some Indians have sold their lands to colonizers. Las Cruces Botanical Garden (115 ha) in Chirripo National Park is managed by the Organization for Tropical Studies which owns it. The bi-national Transboundary Protected Area Technical Commission monitors the agreement and steers negotiations between the many private and public groups and agencies active in Talamanca.

The preparation of a first management plan was coordinated by specialists from the Wildlands and Watershed Programme of CATIE (The Tropical Agricultural Centre for Research and Higher Education) in 1982 and a team from Costa Rica's National Autonomous University prepared a detailed management and development plan for Chirripó National Park. Early plans included detailed recommendations for the management and development of Talamanca-La Amistad and Las Tablas. For the other reserves, more conceptual recommendations on land use and resource protection were outlined. Within the privately owned areas of the Las Tablas area changes of land use are prohibited but in the Indian reserves the Indian populations have exclusive rights to the land. Short-term management of protected wildlands in the World Heritage site are based on objectives, priorities and activities outlined in annual operational plans for these management units. Guard patrols and overflights assure the integrity of resources within the reserves.

From 1985 to 1987 an interdisciplinary team from CATIE and the National Park Service produced a regional conservation and development strategy (Torres *et al.*, 1987). Within the surrounding Biosphere Reserve there are two levels of zoning: one at Reserve level which is managed as one unit, and another within each constituent Reserve according to their statutes, generally managed within natural zones, cultural zones, recovering zones and forest management zones. An environmental education programme has been underway since 1984 in the indigenous reserve and colonist communities adjoining the Atlantic slope. A management strategy for Talamanca-La Amistad National Park was prepared by Conservation International (CI) and accepted by the government in 1990.

Panama: Administration of the National Park is the responsibility of the National Institute of Renewable Natural Resources (INRENARE) and the National Directorate for Protected Areas and Wildlife. ANCON cooperates with both, and led the way in marking its boundaries, and enlisting the cooperation of local people in its protection (Anon, 1988). Various national and international bodies have helped to develop the management plan including WWF and the IUCN's Regional Office (Morales *et al.*, 1984; Alvarado, 1987; Mendez, 1988). ANCON prepared a preliminary plan of action for the Park, identifying the most critical sites as well as coordinating wardening (Anon, 1989), but it was not implemented. The Nature Conservancy, CI, the World Wildlife Fund, the Critical Ecosystems Partnership Fund (CEPF), the Mesoamerican Biological Corridor Project, Rotary International Foundation, Marden Fund and the Mulago Foundation have all advised and funded bi-national protection and management of the complex.

## MANAGEMENT CONSTRAINTS

Costa Rica: Maintaining the traditional lifestyles of 10,000 Indians - of free-range grazing, hunting, fishing and medicinal plant use has a considerable impact. Oil exploration and mining in Talamanca Reserve are problems, as is forest loss and soil degradation in the Ujarras, Salitre and Cabagra areas. There are land squatters on the Pacific side of the Park. If such settlers provide documentary evidence of more than 10

years occupancy, their removal requires compensation under agrarian law. Parts of the buffer zone have been affected by shifting cultivation and forest use, resulting in forest destruction, habitat elimination and watershed degradation. Additional threats come from development projects proposed in or near the Reserve. These include copper mining, hydroelectricity dams, power plants and transmission lines, and the construction of a cross-Talamanca highway. There has been persistent poaching, overfishing, logging, looting of archaeological sites and unregulated tourism. Encroachment by non-Indian colonists for subsistence farms, banana plantations and cattle is serious, particularly along the Pacific slopes of Chirripó, The highlands and Las Tablas have been equally threatened. Insufficient funding in the past resulted in inadequate staff training, poor equipment and infrastructure and too little baseline surveying and delineation of borders.

Panama: Until it was created, La Amistad National Park was under great threat from cattle ranching and timber extraction, burning of the forest which led to erosion, and settlements occupied without legal documentation. Since then several thousand more hectares of the site have become illegal private cattle ranches to which the government has not yet objected. Trails and agricultural incursions have been made into the southern boundary of La Amistad National Park, for which no management plan was made. Encroachment has been continuous along roads, facilitating settlement, logging, grazing and illegal hunting, all of which further fragment the forests. In addition a new road is planned across the property from Boquete in the highlands to Boca del Toro on the Atlantic coast. In 2010 two neighboring hydroelectric dams being built on the east-slope Changuinola and Bonyic rivers will lead to the loss of sixteen species of migratory fish and shrimp, introduce disruptive infrastructure and displace two Ngobe and Naso indigenous communities who may resettle within the site. Proposed fish passes (fast-water spawning channels) and aquaculture will not mitigate the effects on the fish. Three more dams are proposed for the Changuinola river; and a further eight dams on the Atlantic slopes plus one large and several smaller dams on the Pacific slope of the site. Overall management of the watersheds is badly needed: the level of management is low, with no effective participatory process to coordinate local people with the government authorities. A transboundary strategic environmental assessment of the impact of all the present and proposed dams and of the least damaging options is very necessary (IUCN, 2008; UNESCO, 2010).

## **STAFF**

For the various reserves and national parks of the Biosphere Reserve, there are 37 full-time and 2 part-time employees, mostly engaged in protection and surveillance. There are also research workers at various times (MIRENEM, pers. comm., 1995). In 1995, La Amistad Park in Panama had a Director, an administrator and 12 rangers (INRENARE, pers. comm., 1995).

## **BUDGET**

Costa Rica: In 1993, the Bank for Interamerican Development gave US\$2,000,000 for technical project development; the Dutch government gave US\$971,200 for capacity building (1993-1997); UNESCO gave US\$150,000 for environmental education projects. Other funders were Amisconde with US\$3,000,000 for 1992-1994, ASDI who donated US\$2,500,000 to develop research, environmental education and natural resource management projects during 1992-1994, The MacArthur Foundation which gave US\$100,000 for 1992-1994, and Kaneblo, a Dutch organisation gave US\$1,400,000 to fund several capacity building and production projects (MIRENEM, pers.comm., 1995). Panama: In 1994, the total budget was US\$ 101,095, with US\$82,255 provided by INRENARE, and the rest from NGOs. The proposed budget from INRENARE for 1995 was US\$128,255 (INRENARE, pers. comm., 1995). Recent international assistance has amounted to US\$231,350 (UNESCO, 2010).

## **LOCAL ADDRESSES**

Area de Conservacion La Amistad-Region Pacifico, Costado sur del Almacen Mas por menos, San Isidro del General, Perez Zeledon. Apartado 10094, San Jose, Costa Rica.

Instituto Nacional de Recursos Naturales Renovables (INRENARE), Apartado 2016, Ciudad de Panama. Panama.

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## DATE

Costa Rica: 1982. Updated 8-1986, 5-1989, 9-1990, 7-1995, 7-1997, 7-2006, 7-2008, 9-2010, May 2011.

Panama: 1990. Updated 10-1990, 1-1992, 7-1995, 8-1997, May 2011.