

PART 3

ECOLOGY AND SUBSISTENCE: INTRODUCTION

The introduction to Part 3 discusses the concept of cultural ecology and a classification of societies based on their adaptive food-getting strategies.

KEY DEFINITIONS

Ecology is the relationship of an organism to other elements within its environmental sphere.

Cultural ecology refers to the way people use their culture to adapt to particular environments.

The **physical environment** is the world people experience with their senses.

The **cultural environment** is a people's cultural classification of their physical environment, which usually reflects their adaptive needs and cultural perspective.

Subsistence strategies are strategies used by human groups to exploit their environment for material necessities.

Hunting and gathering (foraging) is an adaptive food-getting strategy based on the collecting of wild plants and the hunting of wild animals.

Horticulture is an adaptive strategy in which food is gardened with a hoe or digging stick.

Slash-and-burn agriculture, sometimes also referred to as *shifting agriculture*, is a common kind of horticulture in which large trees are cut and the fields burned over before planting.

Pastoralism is an adaptive strategy based on the herding of domesticated animals such as cattle, sheep, or goats.

Agriculture is an adaptive strategy based on the intensive farming of permanent fields. Agriculture is often associated with the use of the plow, irrigation, and sometimes terracing.

Industrialism is a subsistence strategy marked by intensive, mechanized food production and elaborate distribution networks. It is dominated by a market economy, as well as separate legal, religious, political, and economic systems.

Climate change is a long-term change in the Earth's climate, especially due to a long-term increase in the atmospheric temperature as well as rising sea levels.

PART 3 QUESTIONS

True or False?

- F 1. The physical environment is one area of human experience that people everywhere categorize in the same way.
- F 2. Food-getting strategies have little impact on the structure of society.
- T 3. Four anthropological classifications of societies based on food-getting techniques are hunting and gathering, horticulture, pastoralism, and agriculture.
- F 4. The origin of bipedality (two-footedness) in humans is something that an anthropologist interested in cultural ecology would study.
- T 5. Slash-and-burn agriculture is a kind of horticulture.
- F 6. Cultural ecology is the most important form of subsistence strategy.

Multiple Choice

1. The study of how people use their culture to adapt to particular environments is called
- ecology.
 - cultural ecology.
 - environmental determinism.
 - physical ecology.
- Correct Answer: b
2. The world that people can experience with their senses is called
- ecology.
 - cultural ecology.
 - physical environment.
 - cultural environment.
- Correct Answer: c
3. The fact that a tourist sees scenic mountains and valleys when viewing a high pass in the Rocky Mountains, whereas a geologist sees cirque basins, U-shaped valleys, and paternoster streams, illustrates the concept of
- cultural ecology.
 - physical environment.
 - cultural environment.
 - scientific impartiality.
- Correct Answer: c

4. Slash-and-burn agriculture would best be classified as which kind of the following adaptive strategies?

- a. horticulture
- b. agriculture
- c. pastoralism
- d. industrialism

Correct Answer: a

4. If a society uses irrigation, its food-getting (subsistence) system would best be classified as

- a. agriculture.
- b. horticulture.
- c. pastoral.
- d. hydraulic.

Correct Answer: a

5. Some of the following are listed as subsistence strategies in Part 3 of *Conformity and Conflict*. Which one of the following is **not**?

- a. hunting and gathering
- b. agricultural
- c. manufacturing
- d. horticultural

Correct Answer: c

6. Which one of the following subsistence strategies would most typically be found to support permanent settlements containing between 50 and 250 people?

- a. hunting and gathering
- b. horticulture
- c. agriculture
- d. pastoral

Correct Answer: b

7. According to Part 3 of *Conformity and Conflict*, the relationship of an organism to other elements within its environmental sphere is called

- a. ecology.
- b. cultural ecology.
- c. the cultural environment.
- d. biointeraction.

Correct Answer: a

Article 8 *The Hunters: Scarce Resources in the Kalahari*

RICHARD BORSHAY LEE

With an update by Richard Lee and Megan Biesele

ARTICLE 8 QUESTIONS

True or False?

- T 1. Richard Lee claims that the consumption of edible plants, rather than meat, was the key to successful subsistence for the !Kung in 1963.
- F 2. Lee found that in 1963, from 60 to 90 percent of the !Kung diet consisted of meat brought back to camp by the men.
- T 3. Despite residence in a sparse desert environment, the !Kung did not eat a majority of the edible plants and animals found in their territory when observed in 1963.
- F 4. Because their environment was so difficult, the !Kung relied heavily on the labor of children and old people to provide edible plants for general consumption in 1963.
- T 5. According to Lee, in 1963 the !Kung had more leisure time than average Americans.
- F 6. One reason the study of !Kung subsistence patterns is so important is the rarity of the case; the !Kung had had no contact with other people until the study began in 1963.
- T 7. Over the 30 years since Lee first described them, the Ju/'Hoansi !Kung have come to live in permanent villages and have become much less dependent on foraging to meet their subsistence needs.

Multiple Choice

- 1. According to Richard Lee, in 1963 !Kung men
 - a. supplied between 20 and 40 percent of the calories consumed by members of a camp.
 - b. hunted almost every day to bag sufficient food for people's daily needs.
 - c. collected approximately 70 percent of the edible vegetable foods.
 - d. began hunting regularly before they were 10 years old.Correct Answer: a
- 2. Lee feels that the key to successful subsistence for many hunter-gatherers, such as the !Kung, is
 - a. adequate defense against the encroachment of other hunting and gathering groups.
 - b. dietary selectivity.
 - c. dependence largely on a diet of edible plants.
 - d. band loyalty and membership stability.Correct Answer: c
- 3. According to Lee, the most important staple in the diet of the !Kung when studied in 1963 was
 - a. taro root.

- b. the mongongo nut.
- c. giraffe meat.
- d. a kind of bitter berry.

Correct Answer: b

4. According to Lee and Bieseke, by 1994 Ju/'Hoansi !Kung were
- a. living in mud-walled houses behind makeshift stockades.
 - b. living in circular, tight-knit villages.
 - c. obtaining about 70 percent of their food through hunting and gathering.
 - d. living in temporary, ever shifting camps.

Correct Answer: a

5. In his article, Lee claims that when he studied them in the 1960s, !Kung
- a. ate all of the edible plants and animals found in their environment.
 - b. lived in camps, each of which had a defended territory.
 - c. enjoyed a large amount of leisure time.
 - d. had to move every few days in search of scarce foodstuffs.

Correct Answer: c

6. According to Lee, in 1963 the !Kung had a caloric intake of about _____ per person per day.
- a. 3,030
 - b. 2,410
 - c. 2,140
 - d. 1,890

Correct Answer: b

7. An important point stressed by Lee about the Ju/'Hoansi !Kung he studied in 1963 was that
- a. both adults and children had to work every day to ensure a sufficient food supply.
 - b. the !Kung had to use virtually all of the edible plants and animals in their environment in order to survive in the desert.
 - c. life in the state of nature was not necessarily nasty, brutish, and short.
 - d. meat provided more calories in the !Kung diet than other foods.

Correct Answer: c

8. Some of the following statements about the !Kung as Lee describes their lives in 1963 are not true. Which one is **true**?
- a. They normally live in a "core area" about 30 miles in circumference.
 - b. The proportion of old people to the rest of the population is smaller than that of modern industrial society.
 - c. Boys and girls usually assume food-collecting activities from the time they can walk.
 - d. They have much more leisure time than Americans.

Correct Answer: d

9. According to Lee and Bieseke, in order to survive today, the Ju/'Hoansi Kung will have to
- a. specialize in the manufacture of trade goods for tourists.
 - b. take jobs in nearby cities in order to earn cash.
 - c. form borehole syndicates and stake out ranches to protect their foraging areas.
 - d. open reproductions of traditional foraging camps in order to attract tourists.

Correct Answer: c

Article 9 *Illegal Logging and Frontier Conservation*

NATHAN WILLIAMSON

ARTICLE 9 QUESTIONS

True or False?

1. F According to Williamson, conservation efforts by the Bolivian government and conservation groups have largely succeeded in preventing illegal logging in the Chimanes Indian Reserve.
2. F The Chimanes are a nomadic people who move about the forest to hunt and fish.
3. T *Cuartoneros*, or chainsaw crews, are often made up of poor men from San Borja. They hunt for and harvest mahogany in more remote areas of the Bolivian lowlands.
4. F Numerous logging roads used to legally harvest tropical hardwoods cut up the Chimanes Reserve, an area approximately the same size as the state of Rhode Island.
5. T According to Williamson, the opportunity for higher than average pay and a patronage system keeps Bolivian men returning to the forest to undertake the risky job of illegally harvesting mahogany hardwood.
6. F Williamson believes that sustainably logging virgin rainforest in ways that would permit recovery and timber production over the course of the next 100 years would not cost any more than the current efforts that permit illegal logging.

Multiple Choice

1. The Maniqui is an Amazonian tributary that
 - a. meanders through Bolivia's tropical lowlands to the frontier town of San Borja.
 - b. is used to carry cut timber up to La Paz in the highlands of Bolivia.
 - c. is the main mode of transport used by commercial logging companies.
 - d. winds through clear cut areas of the Chimanes forest.Correct Answer: a
2. The logging policies established by the Bolivian government for the area in and around the Chimanes forest
 - a. are sensible and workable.
 - b. will probably eventually lead to the forest's destruction.
 - c. adequately meet the high worldwide demand for quality tropical hardwood.
 - d. encourage small lumber mills to work only with legal logging companies to harvest tropical hardwood.Correct Answer: b

3. The Chimanes Indians of Bolivia
- are self-sufficient in many ways but still need money for goods they cannot produce themselves.
 - are nomadic and move about the forest to hunt and gather food.
 - use an intricate system of logging roads and machinery to harvest tropical hardwood trees from the forest.
 - are beginning to integrate more with their neighboring communities.
- Correct Answer: a
5. *Cuartoneros*, often made up of the poorest men from the frontier town of San Borja, use a low-tech method of locating and harvesting mahogany trees. Their method depends on the natural resources of the forest and
- access to logging roads.
 - a compass and portable sawmill.
 - cooperation with the larger, legal logging companies.
 - chainsaws and outboard motors.
- Correct Answer: d
6. Once the mahogany tree has been located, the *cuartoneros*
- work quickly to cut the tree and carry it to the nearest road.
 - work with the Chimanes scouts to carry the tree by oxcart to the nearest waterway.
 - clear a trail from the tree to the nearest large stream or river before doing any further cutting.
 - get permission from Bolivian authorities to harvest the tree.
- Correct Answer: c
7. *Planchones* are
- a natural resource that Chimanes use for trade.
 - a type of vegetable that grows in the Chimanes forest.
 - the name for the stretch of trail that each member of the team is assigned.
 - slabs of the mahogany tree cut down to six and one-half inches thick.
- Correct Answer: d
8. *Cuartoneros* cut the *planchones*, relay them to the nearest river, and then tie them into
- cayapos* and float them down the river to San Borja.
 - oxcarts for transport out of the forest.
 - lomos* in preparation for transport down river.
 - bundles that are then carried out on logging roads.
- Correct Answer: a
9. For the most part, *cuartoneros* illegally harvest mahogany because
- the work is easy and brings great monetary reward for little effort.
 - the mahogany trees are easy to find in the remote areas of the Chimanes forest.
 - there are few other opportunities for the indigenous people to earn money or work off debt.
 - legal logging companies are not interested in logging mahogany and so offer no competition.
- Correct Answer: c

ARTICLE 10 QUESTIONS

True or False?

1. T The anthropological term “place-based people” refers to a group who depends directly on its immediate environment for both physical and spiritual sustenance.
2. F An animistic worldview recognizes the sentient quality of humans, while excluding all non-human entities such as animals, plants, and inanimate objects.
3. F In the world of the Viliui Sakha, black shamans travel from the middle world where humans live to interact with sky spirits during the Sakha summer festival, thereby ensuring a plentiful harvest.
4. T According to Crate, her research with the Sakha clarified her belief that global climate change was affecting not only the villagers’ physical environment, but also their adaptations to that environment.
5. T The increasing water on the land was psychologically upsetting to the Sakha and made them fear that their land was sinking.

Multiple Choice

1. The Viliui Sakha developed a belief system that helped them understand and interact with the very extreme environment of Siberia. One example of this system is represented by
 - a. The creation of a *buulus* to store meat, milk products, and ice.
 - b. The shaman who communicates with the *abaahi* (evil spirits) of the underworld during times of crisis and the Bull of Winter.
 - c. Black shamans traveling to the sky realms.
 - d. White shamans traveling to middle earth.

Correct Answer: b

2. The Sakha have had to adapt to physical and social changes over the years. Which of the following was a pre-Soviet-era adaptation?
 - a. consolidation of Sakha subsistence practices into *sovkhozi*, the agro-industrial state farm operations
 - b. industrialization during the 1950s
 - c. paying *iasak*, or fur tribute, to colonizers
 - d. land loss due to border changes

Correct Answer: c

3. According to Crate, which of the following is a change to which the Sakha were forced to adapt at the turn of the 21st century?
- a subtle and gradual, increasing change in the cycles and patterns of weather and climate
 - Soviet-era industrialization in the form of diamond mining
 - annexation of land by colonizers
 - land changes resulting from the fall of the Soviet Union
- Correct Answer: a
4. The surveys and interviews conducted by Crate identified nine ways that the global climate changes have forced the Sakha to further adapt to their climate. Of the nine areas, which was found to be of most concern?
- lagging and extended seasons
 - changing precipitation patterns
 - too much water on the land
 - colder summers
- Correct Answer: c
5. According to Crate, the decline in hares, an important game species for the Sakha, cannot be attributed solely to the effects of climate change. What other reason does she cite for this change?
- more time and resources for the Sakha to hunt than during Soviet times
 - the drying up of the land where hares typically nest
 - improvements on traditional Sakha hunting ethics
 - the use of better rifles
- Correct Answer: a
6. Crate's research turned up several reasons that the Sakha identified for the local climate changes. Which of the following was blamed by most of the participants?
- the Viliui hydroelectric reservoir
 - the natural wet and dry cycles of the area's ecosystem
 - the recent overabundance of technology and mechanization
 - global climate change
- Correct Answer: a
7. According to Crate, the detailed and specific observations of people like the Viliui Sakha
- are important only to the people of northeastern Siberia.
 - are not relevant to the global community and should not inform policy initiatives.
 - contribute important information about the local effects of global climate change.
 - demonstrate that global climate change is not affecting the Republic of Sakha.
- Correct Answer: c
8. Crate's "knowledge exchanges" that followed her research were a great success. Which of the following was **not** one of the goals of these exchanges?
- Add local knowledge to the scientific understanding of climate change.
 - Share scientific knowledge with locals to help explain the changes they are experiencing.
 - Dispute the argument that global climate change exists.
 - Inform policy communities about how climate change is affecting local communities.
- Correct Answer: c

Article 11 *Forest Development the Indian Way* RICHARD K. REED

ARTICLE 11 QUESTIONS

True or False?

- T 1. According to Reed's "Forest Development the Indian Way," the Guaraní and, in the past, millions of other Indians, exploited the Amazonian tropical forests without causing permanent harm to the ecosystem.
- F 2. Reed claims that the Guaraní depend on a slash-and-burn agriculture for 94 percent of their dietary needs.
- T 3. The Guaraní, according to Reed, have exploited the forest commercially as well as for subsistence for nearly 500 years.
- F 4. Reed argues that people must be prevented from living in the Amazon forest if the tropical ecosystem is to survive.
- T 5. According to Reed, when colonists develop the tropical forest in which Guaraní live, the Indians must farm more and more land to survive.
- F 6. By sustainable development, Reed means that commercial lumber companies and ranchers should replant the tropical forest after they have cut it down and permit exploited areas to regenerate for approximately 40 years.

Multiple Choice

- 1. In his article "Forest Development the Indian Way," Reed argues
 - a. for government control of forest development that eases the Indians into the modern world economy gradually.
 - b. for a sustainable development program that permits the collection and sale of forest products without destroying the original ecosystem.
 - c. for an Indian relocation plan.
 - d. for laws that require commercial lumber companies and ranchers to replant the forest and introduce a 40-year cutting and clearing cycle.

Correct Answer: b

- 2. According to Reed in "Forest Development the Indian Way," Guaraní Indians subsist in the Amazon tropical forest largely by
 - a. slash-and-burn farming.
 - b. horticulture and foraging.
 - c. foraging.
 - d. rubber tree tapping.

Correct Answer: b

3. Which one of the following was **not** a consequence of outside development in the Guaraní tropical forests, according to Reed?
- a. The Indians who stayed on the land could no longer farm.
 - b. The Guaraní could no longer practice successful horticulture.
 - c. Disease and malnutrition increased.
 - d. The Indians could no longer hunt and fish successfully.

Correct Answer: a

4. In “Forest Development the Indian Way,” Reed argues that, for the Guaraní, _____ was essential to subsistence.
- a. farming
 - b. foraging
 - c. the combination of hunting and gathering
 - d. the combination of farming and foraging

Correct Answer: d

5. According to Reed’s “Forest Development the Indian Way,” sustainable development could look like
- a. commercial forest exploitation with the elimination of natural resources.
 - b. leaving the economic, ecological, and social spheres of people living in the forest to market forces
 - c. the promotion of social cohesion in among all people in the forest by more evenly distributing rising living standards.
 - d. maintaining traditional practices of slash-and-burn combined with limited commercial exploitation.

Correct Answer: d

6. According to Reed’s “Forest Development the Indian Way,” until the recent incursion of *colonos* (colonists, such as ranchers and farmers), Guaraní villagers
- a. had no contact with people in other parts of South America.
 - b. traded with outsiders for machetes, hooks, soap, and salt.
 - c. developed an indigenous market system that tied villages together.
 - d. worked for decades as rubber tappers to augment their subsistence economy.

Correct Answer: b