★ 以下題目請在「非選擇題作答區」作答

I. 中文翻譯

請將下文中十五個劃底線的中文辭彙翻譯成英文，所有翻譯必須配合其原文文義。全部以小寫印刷體書寫，潦草者不予計分。所有的辭彙均以名詞回答，必須拼字正確才能得分。

台灣在與其他國家互動、交流頻繁之下，引進了不少**外來種**。外來種可能因為沒有**天敵**、及其本身高生殖力及遷移率等因素，有時族群快速擴張，成為入侵種，為本土生態系帶來不可預期的生態衝擊，甚至破壞農作物，造成農民莫大損失。例如吳郭魚屬於慈鯛科，原產於非洲，引進後雖然對台灣經濟貢獻很大，卻因為**適應力**強，已經入侵到台灣的自然環境中。根據農委會特有生物研究保育中心的調查，目前全台 48 條重要河川均遭到吳郭魚的入侵。外來種生物的引入，最直接的危害為**掠食**當地**原生物種**，使原生物種**族群**數量降低甚至**絕滅**。例如外來種美國螯蝦會捕食原生蝦蟹魚及卵，造成原生蝦蟹魚類的減少。此外，如果外來種生物的生態習性與原生物種相似，可能會與原生物種發生**種間競爭**，使原生物種族群數量降低。例如由大陸沿海及東南亞來的家八哥，侵犯本土八哥的棲息地，由於個性凶悍並且具有強烈**領域性**，已使得本土八哥的數量急遽減少。另外，外來種也可能與血緣近似的原生種**雜交**，例如野外常可發現大陸畫眉與台灣畫眉的雜交個體，雜交結果，最終將使原生種獨特的基因消失。外來物種除了上述影響之外，其層面亦可能進一步透過對**基礎生產力**、**營養循環**、**干擾**幅度**頻度**，甚或土壤植被結構的改變而廣及整個生態系統。目前已被列為對台灣生態危害的**入侵種**不下數十種，其中以琵琶鼠魚、吳郭魚、松材線蟲、福壽螺、小花蔓澤蘭、大花咸豐草、銀合歡所造成的危害最令人憂心。(本文改自農委會自然資源與生態資料庫及台灣大學農業陳列館網站)

英譯詞彙 (每題 2 分)

1. 外來種
2. 天敵
3. 適應力
4. 掠食
5. 原生物種
6. 族群
7. 絕滅
8. 種間競爭
9. 領域性
10. 雜交
11. 基礎生產力
12. 營養循環
13. 干擾
14. 頻度
15. 入侵種

II. 英文翻譯

請將下列兩篇英文短文中的十個英文辭彙翻譯成中文，所有的翻譯必須配合其原文文義。 全部以正楷書寫，潦草者不予計分。

1. Biodiversity conservation in forestry and agricultural landscapes is important because **reserves** alone will not protect biodiversity; commodity production relies on vital services provided by biodiversity; and biodiversity enhances resilience, or a system's capacity to recover from external pressures such as droughts or management mistakes. There are guiding principles to help maintain biodiversity, ecosystem function, and **resilience** in production landscapes. Landscapes should include structurally characteristic patches of native vegetation, **corridors** and stepping stones between them, a structurally complex **matrix**, and **buffers** around sensitive areas. Management should maintain a diversity of species within and across **functional groups**. Highly focused management actions may be required to maintain **keystone species** and threatened species, and to control invasive species. These guiding principles provide a scientifically defensible starting point for the integration of conservation and production, which is urgently required from both an ecological and a long-term economic perspective. (Adopted from *Frontiers in Ecology and the Environment: Vol. 4, No. 2, pp. 80–86)*

接背面

2. Although ecologists want to conduct research in **urban** systems, cultural constraints, spatial complexity, and institutional agendas limit the establishment of ecological experiments. Recent approaches using household landscaping have begun to tackle these obstacles; others, including adaptive management, **restoration**, **reclamation**, and wetland construction, reveal overlaps between ecological experiments and urban design. "Designed experiments" propose going beyond current strategies to partner with urban designers, landscape architects, and architects to insert architecturally designed experiments into the urban mosaic. The interdisciplinary approach of designed experiments exploits the aesthetics and functions of urban design, balancing ecological goals with important design factors such as context, public amenities, and safety. Designed experiments represent a novel way for ecologists to help improve urban environments by providing a means with which to work with urban designers in creating attractive, practical, and replicated experimental designs that generate quality ecological data from metropolitan sites (Adopted from *Frontiers in Ecology and the Environment:* Vol. 3, No. 10, pp. 549–556)

中譯詞彙 (每題 2 分)

1. reserve(s)
2. resilience
3. corridor(s)
4. matrix
5. buffer(s)
6. functional group(s)
7. keystone species
8. urban
9. restoration
10. reclamation

III. 閱讀測驗 (出自 Environmental News Network, 每題 5 分)

A. It is no coincidence that the United Nations chose the southern Brazilian city of Curitiba to host its eighth conference on the Convention on Biological Diversity, which is under way this week. Experts say forward-thinking mayors have struck a balance in Curitiba between social and environmental concerns, providing an example for other cities in a country with a fifth of the world's biodiversity.

Curitiba is a far cry from the polluted, crime-plagued cities of Sao Paulo and Rio de Janeiro. Curitiba's parks and public gardens total 4,200 acres. Residents zip around town on an innovative public transportation system and leafy bike paths.

"This convention in Curitiba pays homage to the good choices the city made in the past, investing in infrastructure, public transportation and green areas," said Jose Carlos Carvalho, secretary of Environment for the state of Minas Gerais, who was visiting Curitiba to attend the conference.

The city's public bus system, nicknamed "speedy" because of its exclusive express lanes, has inspired similar models even in car-dominated cities such as Los Angeles. Passengers wait for buses in futuristic plastic tubes serving as platforms. Much of the smart planning choices were made by former Mayor Jaime Lerner, an architect who is well-regarded in urban planning circles in the United States and Europe. Some say good planning has helped make the city more socially equitable and inclusive.

"Curitiba is prettier than Rio de Janeiro, people are nicer, and the city doesn't have such contrasts between poor and rich, with slums alongside million-dollar homes," said Sandy Gauntlett, a New Zealander representing the Global Forest Coalition. He said he felt safer in Curitiba than in drug-infested Rio. Home to immigrants from Portugal, Germany, the Netherlands and Italy, the city of 1.6 million inhabitants has become a cultural center of contemporary art in Brazil.

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To show that it is socially progressive, the state government put up billboards on the way to the city center from the airport that read "Welcome to the GMO resistance land." Brazil, a farming powerhouse, is one of the biggest growers of genetically modified (GMO) soybeans. On Wednesday, the governor of Parana state, populist Roberto Requiao, signed a bill requiring warning labels on products made with GMO crops that are sold in the state and its capital, Curitiba. It is the first state in Brazil to adopt such a measure.

1. Curitiba was chosen by the UN to host its eighth conference on the Convention on Biological Diversity, because
   (1) it is a city with a fifth of the world's biodiversity.
   (2) it is a polluted and crime-plagued city.
   (3) it is a city which has struck a balance between social and environmental concerns.
   (4) it is a cultural center of contemporary art in Brazil.
2. Which of the following is the least appropriate description of Curitiba?
   (1) rich
   (2) convenient public transportation
   (3) green
   (4) diverse culture
3. Curitiba is the capital of a state in Brazil that first adopt the measure of
   (1) welcoming GMO farming..
   (2) welcoming GMO product.
   (3) requiring warning label of GMO product.
   (4) becoming the biggest growers of GMO soybeans.

B. The region's largest infestation of mountain pine beetles in 20 years has hit more than a million acres of forests in northern Idaho and Montana, while 2.5 million acres in Washington face disease and insect problems. Recent flight surveys by the U.S. Forest Service and state forest management agencies found that years of drought have left forests in the Northwest vulnerable. The surveys found that 1.1 million acres of forest came under attack by mountain pine beetle in northern Idaho and Montana in 2005, an increase from the 675,000 acres the year before. The Washington Department of Natural Resources reported that mountain pine beetles were at "epidemic" levels, with a 28 percent increase to 554,000 acres. Overall, insect and disease problems are present in 2.5 million of Washington's 21 million acres of forest, up from 1.9 million acres the previous year.

Karen Ripley, an entomologist with the Washington Department of Natural Resources, said last year's abundant rain and this winter's good snowpack will reduce the stress on the region's forests. But she said it would take several years of normal moisture for forests to return to health. She said fire suppression combined with a lack of logging means nature will find a way to remove trees.

Tom Martin, a silviculturist with the Idaho Panhandle National Forest, said the Forest Service wants to thin about 500 acres in the Upper St. Joe River area of Idaho to reduce the infestation. The agency, he said, has also spent $40,000 to protect lodgepole pine at the Lookout Pass Ski Area with pheromone treatments. The treatments fool beetles into thinking a tree has already been attacked.

The survey found that populations of other bark beetles in the Idaho Panhandle National Forest were "much reduced." In the Colville National Forest in eastern Washington, fir engraver beetles appear to be increasing, infesting about 368,000 acres of forest in 2005. That's up 20 percent from the previous year. Douglas fir beetles have infested about 69,000 acres in eastern Washington, up from the 50,000 acres where they were found the previous year. Mountain pine beetles have also been a problem in British Columbia, where at least 20 million acres of forest have been killed. Officials there say warmer-than-average winters have led to the outbreak.

接背面

4. Which of the following factors is suspected to be most critical for causing mountain pine beetle outbreak in Idaho?
   (1) temperature
   (2) moisture
   (3) other beetles
   (4) winter snow pack
5. According to Karen Ripley, which of the following is not good for maintaining a healthy forest?
   (1) fire suppression
   (2) abundant rain
   (3) winter snow pack
   (4) silviculture
6. Also according to Karen Ripley, beetles tend to infest
   (1) stressed trees
   (2) logged trees
   (3) pheromone-treated trees
   (4) trees infested by other beetles

C. Green building is a trend that's picking up speed across the United States as homeowners struggle with high utility bills and leaders begin to talk about shifting the country's diet from oil to more renewable energy sources. "Ten years from now it will be the way of doing it, not because it's mandatory, just because it's the right way of doing it," said Armando Cobo, an Albuquerque designer who has been active in promoting the green building standards. "It just makes 100 percent sense," he said. "For a small amount of money, you can have a better house, more energy efficient house. Why would you want something that doesn't meet those standards? It's a no-brainer."

And gone are the days when green-built homes teetered on the fringe of being freaky with a mishmash of recycled tires and aluminum cans and awkward solar panels. Now, solar power systems can be hidden on rooftops, insulation made of recycled material becomes invisible behind walls covered with nontoxic paint, and more efficient heating and cooling systems are woven into the home's inner skeleton. Green builders also use framing techniques that cut down on waste; some look for opportunities to use salvaged materials.

The beams and other wooden accents in Schreifels' home come from timber harvested following a forest fire in northern New Mexico. The wood is just one example of the steps Schreifels -- with help from Green Builder magazine -- has taken to make the home a green example. "It gets a little more of the checking and cracking in it, but I like that," Schreifels said of the reclaimed wood. "Every one of these (beams) would have just stayed there and rotted out."

Both Tonjes and Cobo noted that the basic principles date back centuries to a time when people were conscious of their surroundings and built dwellings that worked with the environment. Tonjes talked about the Nebraska dugout in which his grandfather was born and how it was built into a slope to protect against the north wind. Cobo pointed to indigenous people who built their homes with adobe bricks and positioned them to take advantage of the sun's rays. "That is a heritage that we should not be taking for granted and we should build upon," Cobo said.

7. Which of the following is not a character of green building?
   (1) water conservation
   (2) recycled material
   (3) fire resistance
   (4) energy efficient
8. Which of the following is a synonym of "framing" technique?
   (1) construction
   (2) composer
   (3) erect
   (4) modification
9. Which of the following is least likely to be the reason why green building was not very popular in the past?
   (1) not enough techniques
   (2) cheap energy
   (3) inflexible
   (4) environmental friendly
10. Which of the following is a good example of construction in the past that matched the basic principle of green building?
   (1) used of natural woods to built homes
   (2) positioned home to take advantage of the sun rays
   (3) built homes on slope land
   (4) built homes with aluminum cans

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