ICIMOD Manual 2017/2

Community Training Manual

Management of Invasive Alien Plant Species in the Hindu Kush Himalaya

ICIMOD

FOR MOUNTAINS AND PEOPLE

About ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD) is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalayas (HKH) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – based in Kathmandu, Nepal. Globalization and climate change are having an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream and downstream issues. ICIMOD supports regional transboundary programmes through partnerships with regional partner institutions, facilitates the exchange of experiences, and serves as a regional knowledge hub. It strengthens networking among regional and global centres of excellence. Overall, ICIMOD is working to develop economically- and environmentally-sound mountain ecosystems to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now and in the future.

ICIMOD gratefully acknowledges the support of its core donors:
The Governments of Afghanistan, Australia, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Norway, Pakistan, Switzerland, and the United Kingdom.

ICIMOD Manual 2017/2

Community Training Manual

Management of Invasive Alien Plant Species in the Hindu Kush Himalaya

International Centre for Integrated Mountain Development, Kathmandu, Nepal, February 2017

Published by
International Centre for Integrated Mountain Development
GPO Box 3226, Kathmandu, Nepal

ISBN 978 92 9115 462 3(printed) 978 92 9115 463 0 (electronic)
ICCN 2017-322003

Contributors
Srijana Joshi[1], Neha Bisht[1], Eileen Lemke[2], Corinna Wallrapp[2], Heike Junger-Sharma[2], Bharat Babu Shrestha[3], Snigdha Nanda[1], Yi Shaoliang[1], Ram Prasad Chaudhary[4], Rajan Kotru[1], Wu Ning[1]

Acknowledgment
Communities of the Api Nampa Conservation Area, Nepal;
Shankar Badal[5], Indra Nagri[5], Ashok Ram[5], Pradyumna Rana[1], Kamal Aryal[1], Yadav Uprety[4], Janita Gurung[1], Mohan Pandey[3]

Production Team
Amy Sellmyer and Christopher Butler (Editors)
Asha Kaji Thaku (Editorial assistant)

Illustrations: Asha Kaji Thaku

Photos: Bharat Babu Shrestha, Neha Bisht, Srijana Joshi

Printed and bound in Nepal by
Hill Side Press (P) Ltd., Kathmandu, Nepal

This publication is available in electronic form at www.icimod.org/himaldoc

Citation: ICIMOD (2017) Management of Invasive Alien Plant Species in the Hindu Kush Himalaya. ICIMOD Manual 2017/2. Kathmandu: ICIMOD

[1] International Centre for Integrated Mountain Development (ICIMOD)
[2] Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
[3] Central Department of Botany, Tribhuvan University
[4] Research Centre for Applied Science and Technology (RECAST), Tribhuvan University
[5] Api Nampa Conservation Area (ANCA)

About Transboundary Landscape Initiatives in the Hindu Kush Himalaya

The Hindu Kush Himalaya is extremely varied, yet there are many interlinkages between biomes and habitats as well as strong upstream-downstream linkages related to the provisioning of ecosystem services. The Convention on Biological Diversity advocates for the use of landscape and ecosystem approaches for managing biodiversity in the region, recognizing the need for increased regional cooperation. ICIMOD and its partners have identified seven transboundary landscapes for programmatic cooperation. From west to east, these are: Hindu Kush Karakoram Pamir, Kailash, Everest, Kangchenjunga, Far Eastern Himalayas, and Cherrapunjee-Chittagong. The transboundary landscape concept makes it possible to address the conservation and sustainable use of natural resources (biodiversity, rangelands, farming systems, forests, wetlands, and watersheds) in landscapes defined by ecosystems rather than administrative boundaries. The approach is people-centred and includes cultural conservation, which is an essential first step to resource conservation efforts in the region and helps translate collaborative action into sustainable and equitable development.

About the Kailash Sacred Landscape

Located within the remote southwestern portion of the Tibet Autonomous Region of China, adjacent districts in the Far-Western region of Nepal, and the northeastern flank of Uttarakhand State in northern India, the Kailash Sacred Landscape (KSL) is spread over an area of about 31,000 km^2 and represents a diverse, multi-cultural, and fragile landscape.

The Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) is a transboundary collaborative programme between China, India, and Nepal that has evolved through a participatory, iterative process among various local and national research and development institutions within these countries. The programme aims to achieve long-term conservation of ecosystems, habitats, and biodiversity while encouraging sustainable development, enhancing the resilience of communities in the landscape, and safeguarding the cultural linkages between local populations.

About Invasive Alien Species

An alien species (also known as non-native, non-indigenous, foreign, or exotic species) is a species or subspecies occurring outside of its natural range. It can be a plant, animal, fungus, or micro-organism. An alien species that has a negative impact on the environment, economy, and health of the area in which it is introduced is called an invasive alien species. After being introduced to a new environment, invasive alien species will spread, threaten local ecosystems and habitats, and cause negative ecological, biological, socioeconomic, and health impacts. They are considered to be a direct driver of biodiversity loss worldwide. This manual focuses mainly on invasive alien plant species found in various ecosystems of Nepal, and ways to identify and effectively manage them.

Picture Series: A methodology for inclusive adult education

Picture Series is a participatory, inclusive adult education training method for communities and other local level stakeholders in development programmes.

This method:

- Simplifies difficult technical subjects into the language and messages that resonate with the local communities, NGO staff, and other stakeholders in the field.
- Allows participants to be actively involved in discussion.
- Provokes and steers the participants' thought processes.
- Is an intensive process for participants, as well as trainers, that results in new insights on the topic of the training.

The material can be used by local authorities or field staff of governmental or non-governmental organizations working in an area related to the respective topic and who have adequate knowledge.

Possible users

1. Ministries related to forest, agriculture, soil, and the environment
2. Protected area managers
3. Non-governmental organizations (NGOs)
4. Community trainers
5. Universities and institutes
6. Schools and eco-clubs

How to Use This Manual

Target group: Community members, schools, and local authorities.

Aim: Participants understand the connection between invasive alien plant species and their negative impacts on the health, economy and the environment, as well as ideas for managing them.

Duration: 1.5 to 2 hours

Note: In addition to using the picture series as a whole during a well-organized training session, trainers can also use individual pictures to conduct short, flexible, ad hoc awareness-building activities for a specific purpose.

General rules for the training

1. Give everyone a chance to express his/her point of view freely and without interruption.
2. Actively involve women and quieter participants in the discussion, as they may remain quiet while more active participants express their opinion more emphatically.
3. Listen to each participant attentively, and give her/him the feeling that every answer is important.
4. There are no wrong answers.

An efficient and successful training session on Invasive Alien Plant Species Management in the Hindu Kush Himalaya has three parts:

- Preparation
- Conducting the training
- Assessment

Making the training a success is a difficult task and depends on the way you, as the trainer, address the community members.

Preparation

Choose the place for the training. Inform the participants about the place, date, and time well in advance. Gather all the materials and familiarize yourself with them. Arrange the pictures in order. Seats should be arranged in a semi-circle. Ensure there is enough light to see the pictures during the training. Encourage women to participate.

Conducting the training session

Step 1 Get introduced by the local leaders and/or the partner. Create a warm and positive atmosphere by telling a story about yourself, the topic, the area, and your visit.

Step 2 Select one volunteer and ask her/him to come to the front. Ask her/him to take the first picture and to show it to the audience. She/he can move around if necessary to ensure that everyone sees the picture properly. Take your time to ensure that everyone has seen the picture. Do not rush.

Remember: It is best if you show the picture yourself, as you can guide the direction, speed, and level of discussion, for example by requesting the participants to only look at the picture and to speak later.

Step 3 3Ask the question: What do you see on the picture? Encourage the participants to describe and discuss the contents of the picture, but not the meanings or stories behind the picture. There are no wrong answers, as people are interpreting the pictures. Make sure they do not feel like they are making any mistakes. If they are not giving the desired answers, ask other questions to steer the discussion and to encourage people to consider other points of view. Do not describe or explain the picture to the participants at any time.

Step 4 If the participants (and you) are satisfied with the description of the pictures, take the next one according to the order suggested in the manual.

Step 5 After all pictures from the first topic are shown, ask the participants to create stories using the pictures. Ensure that everyone understands the objective and messages of the topic. Only then move on to the next topic.

Step 6 Please note that you can be flexible regarding the order of the pictures. You can always go back to already used pictures, ask people to make the right order of a series of pictures, or ask them to set priorities. Adapt to the situation. Play with the pictures, and let others also play with them as well. For example, let sequences change, use volunteers to stand in different sequences with pictures, request new or better drawings, etc.

Assessment

At the end of the session, ask questions to find out if the participants understand the topic. Gather feedback on the material used and the training session. Make notes of the collected feedback after the training session and try to incorporate the feedback into your next training session.

Contents

1. Invasive alien plant species: An introduction

Aim of the topic

Participants understand what invasive alien plant species are and how to identify them.

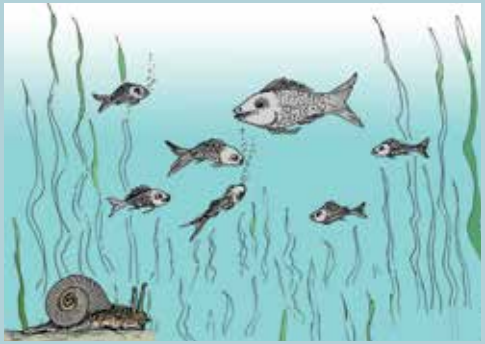
Messages

Remember

- Invasive alien species can be plants, animals, or fungi.
- Invasive alien plant species can be found in all areas (including agricultural land, forests, grasslands, wetlands, and residential areas).
- They can replace native species, degrade habitats, and reduce biodiversity.
- Invasive species grow and spread very fast, which makes their management and removal difficult.

Describe the pictures and tell stories

1



2

3

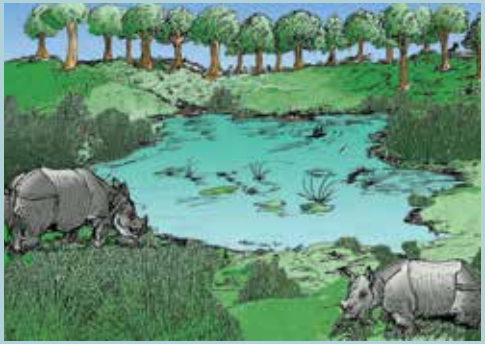
4

5

6

7

8



9

7

Indicators of the pictures

1 Invasive alien species can be plant
2 Invasive alien species can be animal
3 Invasive alien species can be fungi/mushroom
4 Invasive alien plant species found in agriculture areas
5 Invasive alien plant species found in forests
6 Invasive alien plant species found in grasslands
7 Invasive alien plant species found in wetlands
8 Invasive alien plant species found in residential area
9 Wetland area with no invasive alien plant species
7 Wetland area with many invasive alien plant species

2. How invasive alien plant species spread

Aim of the topic

Participants are able to identify possible factors that enable the rapid spread of invasive alien plant species in their area.

Messages

Remember

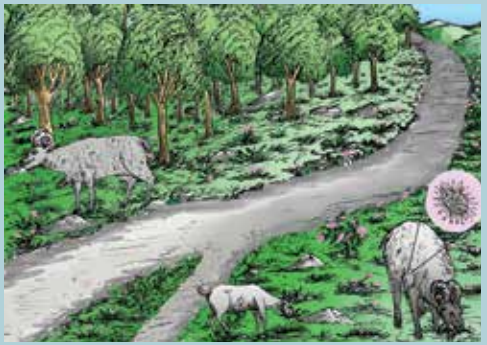
- Invasive alien plant species spread through seeds and/or vegetative parts (including roots, leaves, leaf buds, and stems).
- Animals, like livestock and birds, spread the seeds of invasive alien plant species. They eat the seeds of invasive alien plant species with their food, which is then expelled as part of the animal's excrement, spreading the seed to new places if the animal has moved. Seeds of invasive alien plant species also hitch-hike on animals from one place to another.
- Tourist recreational activities like hiking and boating facilitate the spread of invasive alien plant species outside their natural range.
- International trade, transport, and human movement are major pathways for the dispersal of invasive alien plant species.
- Agricultural inputs, particularly seed stocks, provided from areas outside the community can spread invasive alien plant species.

Describe the pictures and tell stories

10

11

12



13

14

15

16

Indicators of the pictures

10 Spreads through seed
11 Spreads through vegetative parts
12 Seed spreads through birds eating fruits and through their excreta
13 Livestock carrying seeds of invasive alien plant species on their body
14 Invasive alien plant species spreads along road
15 Recreational activities like boating also spreads invasive alien plant species
16 Seed distribution from one place to another (which may have invasive alien plant species seeds as well)

3. Impacts of invasive alien plant species

Aim of the topic

Participants understand the negative impacts of invasive alien plant species on the environment, economy, and health of humans and animals. It harms their crops, livestock and forage production in forests, pastures and in wetlands.

Messages

Remember

Environment:

- Invasive alien plant species can take over areas where native vegetation grows and can prevent its regeneration.
- Invasive alien plant species reduce and/or replace useful plants, including plants that are a source of valuable non timber forest products.
- The presence of invasive alien plant species reduces the growth of grass for grazing.
- Invasive alien plant species are usually less palatable and are not preferred by animals.

Economic:

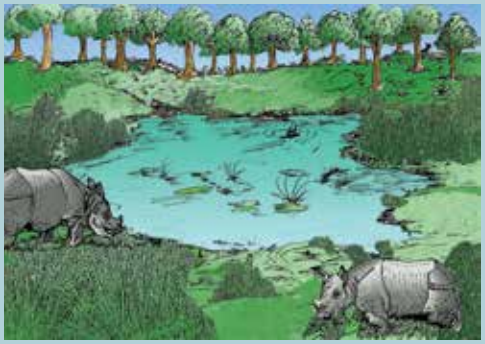
- The removal and management of invasive alien plant species is difficult and labour intensive, which requires time and resources.
- Invasive alien plant species compete with crops and grasses, which reduces the productivity of farmland and grassland.

Social:

- Some invasive alien plant species can threaten the health of humans and animals.

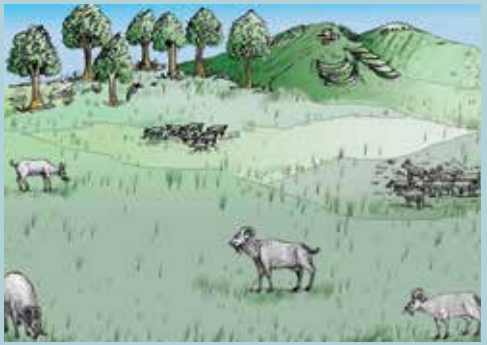
Describe the pictures and tell stories

7



9

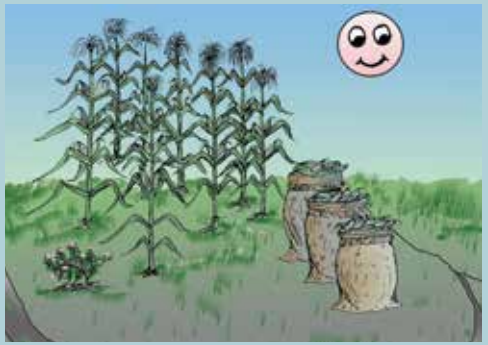
6



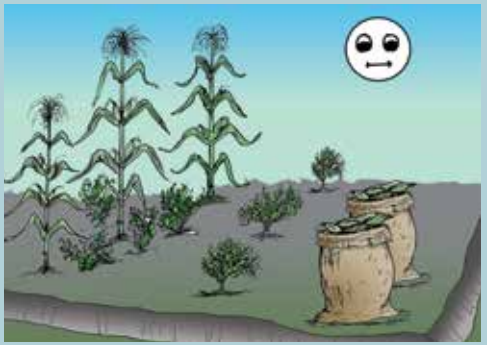
17

18

19



20



21

22

23

Indicators of the pictures

7 Invasive alien plant species found in wetlands
9 Wetland area with no invasive alien plant species
6 Invasive alien plant species found in grassland
17 Grassland area without invasive alien plant species
18 Sick and haggard animal
19 Tiresome and labour intensive weeding
20 High productivity
21 Medium productivity
22 Low productivity
23 Invasive alien plant species causing skin allergy and health issue

4. What to do: Taking action against invasive alien plant species

Aim of the topic

Participants know ways to reduce/remove invasive alien plant species and are able to implement them.

Messages

Remember

- Raising awareness about invasive alien plant species is an important part of their management.
- Quick action should be taken to completely destroy invasive alien plant species when they are first seen. It will be easier and more effective when the population of the invasive species is still small and limited to a small area.
- Invasive alien plant species must be uprooted before flowering. If they are only cut, they will grow back.
- Removed invasive alien plant species can be used to make compost.
- Removed invasive alien plant species can be used to make bio-briquettes and even furniture.
- After removing invasive alien plant species, plant native species to help them permanently replace invasive alien plant species.

Describe the pictures and tell stories

24

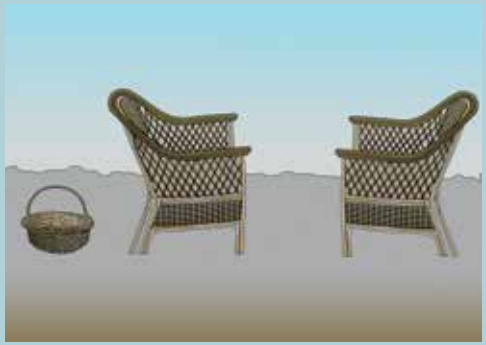
25

26

27

28

29



30

31

Indicators of the pictures

24 Awareness raising programme in school
25 Awareness raising programme to local community
26 Don't cut or uproot invasive alien plant species when they are flowering
27 Uproot invasive alien plant species before flowering
28 Make use of invasive alien plant species by making compost
29 Invasive alien plant species can be used to prepare bio-briquettes
30 Some invasive alien plant species can be used to prepare furniture/handicrafts
31 Plant native species after removing invasive alien plant species

Summary of the pictures

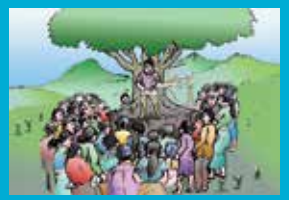
No.	Picture	Indicator of Picture
1		Invasive alien species can be plant
2		Invasive alien species can be animal
3		Invasive alien species can be fungi/mushroom
4		Invasive alien plant species found in agriculture areas
5		Invasive alien plant species found in forests

No.	Picture	Indicator of Picture
6		Invasive alien plant species found in grasslands
7		Invasive alien plant species found in wetlands
8		Invasive alien plant species found in residential area
9		Wetland area with no invasive alien plant species
10		Spreads through seed

No.	Picture	Indicator of Picture
11		Spreads through vegetative parts
12		Seed spreads through birds eating fruits and through their excreta
13		Livestock carrying seeds of invasive alien plant species on their body
14		Invasive alien plant species spreads along road
15		Recreational activities like boating also spreads invasive alien plant species

No.	Picture	Indicator of Picture
16		Seed distribution from one place to another (which may have invasive alien plant species seeds as well)
17		Grassland area without invasive alien plant species
18		Sick and haggard animal
19		Tiresome and labour intensive weeding
20		High productivity

Summary of the pictures

No.	Picture	Indicator of Picture
21		Medium productivity
22		Low productivity
23		Invasive alien plant species causing skin allergy and health issue
24		Awareness raising programme in school
25		Awareness raising programme to local community

No.	Picture	Indicator of Picture
26		Don't cut or uproot invasive alien plant species when they are flowering
27		Uproot invasive alien plant species before flowering
28		Make use of invasive alien plant species by making compost
29		Invasive alien plant species can be used to prepare bio-briquettes
30		Some invasive alien plant species can be used to prepare furniture/handicrafts
31		Plant native species after removing invasive alien plant species

Ageratina adenophora


Lantana camara


Ageratum houstonianum

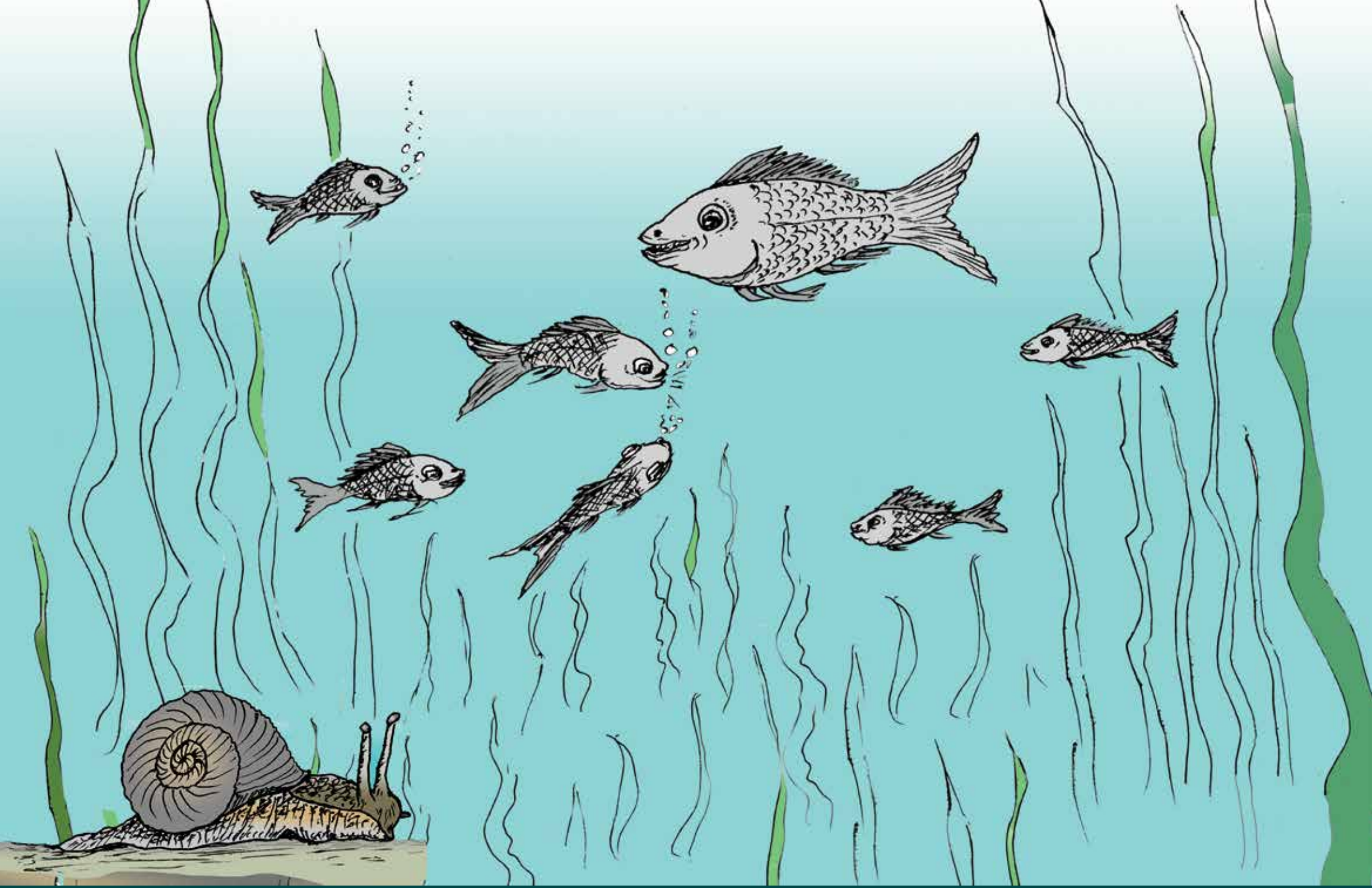

Erigeron karvinskianus

Parthenium hysterophorus

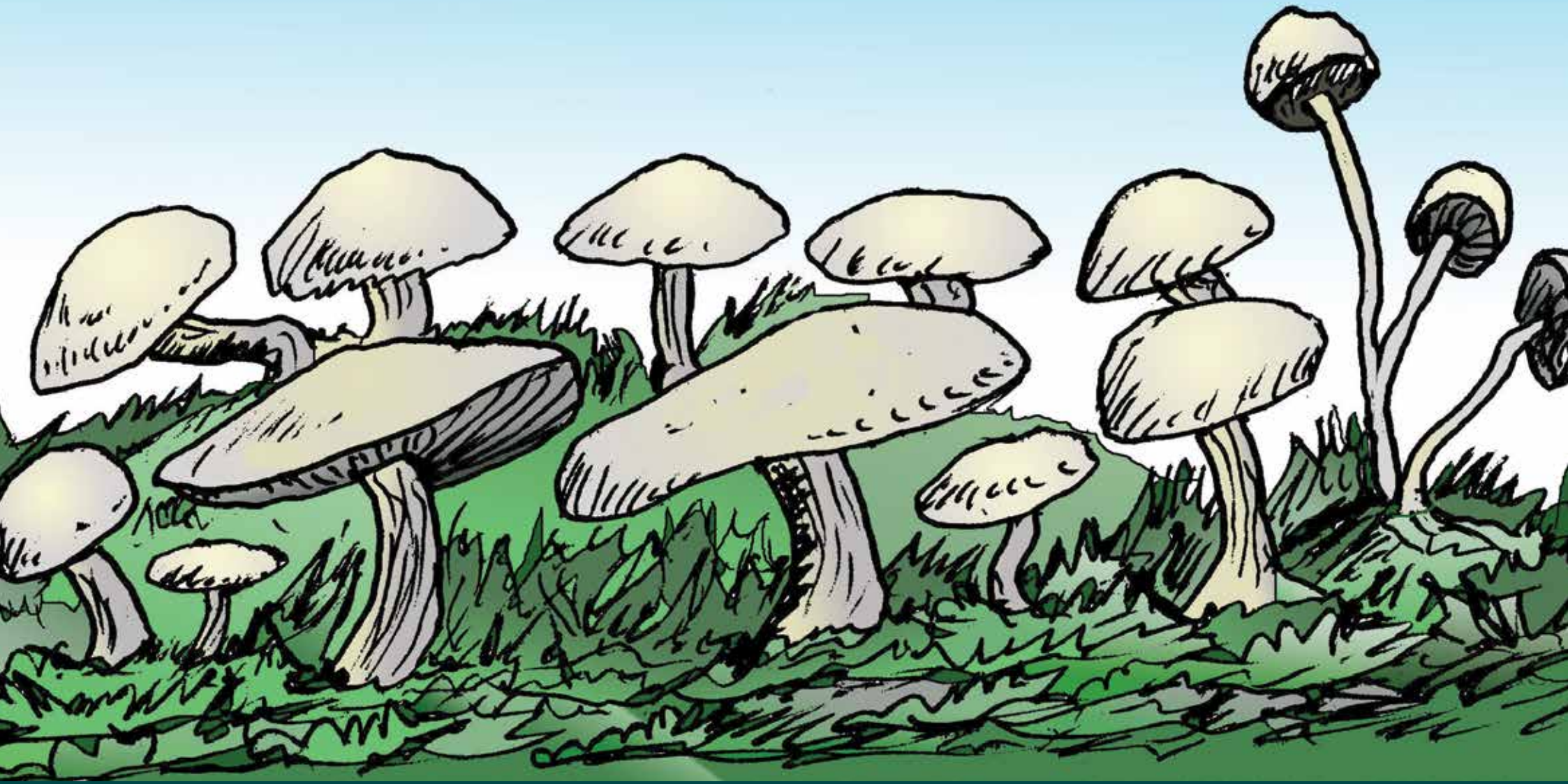
International Centre for Integrated Mountain Development
GPO Box 3226, Kathmandu, Nepal
Tel +977 1 5003222 **Fax** +977 1 5003299
Email info@icimod.org **Web** www.icimod.org

ISBN: 978 92 9115 462 3

1 Invasive alien species can be plant



2 Invasive alien species can be animal



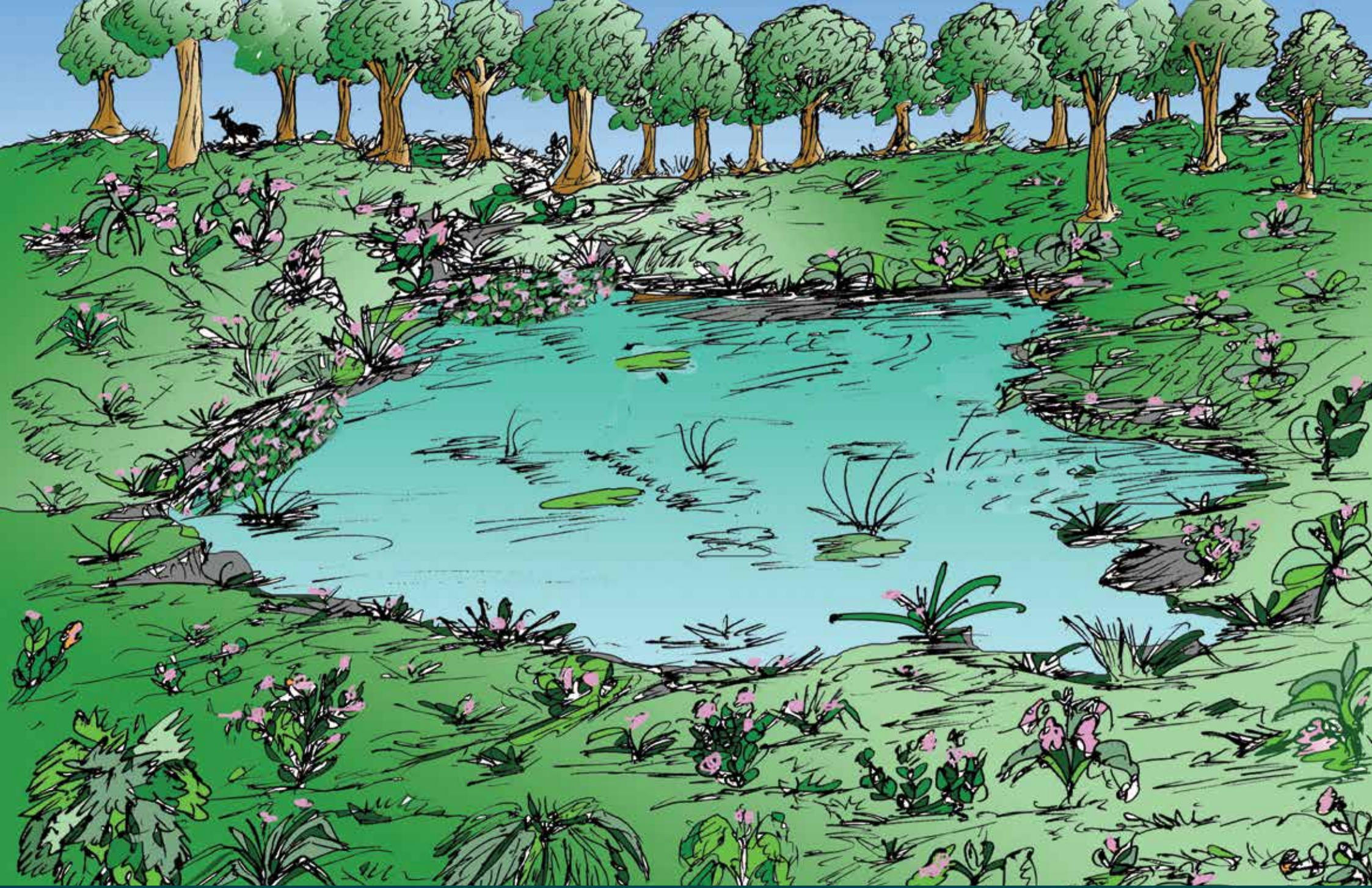
3 Invasive alien species can be fungi/mushroom


AUG→ OCT

4 Invasive alien plant species found in agriculture areas

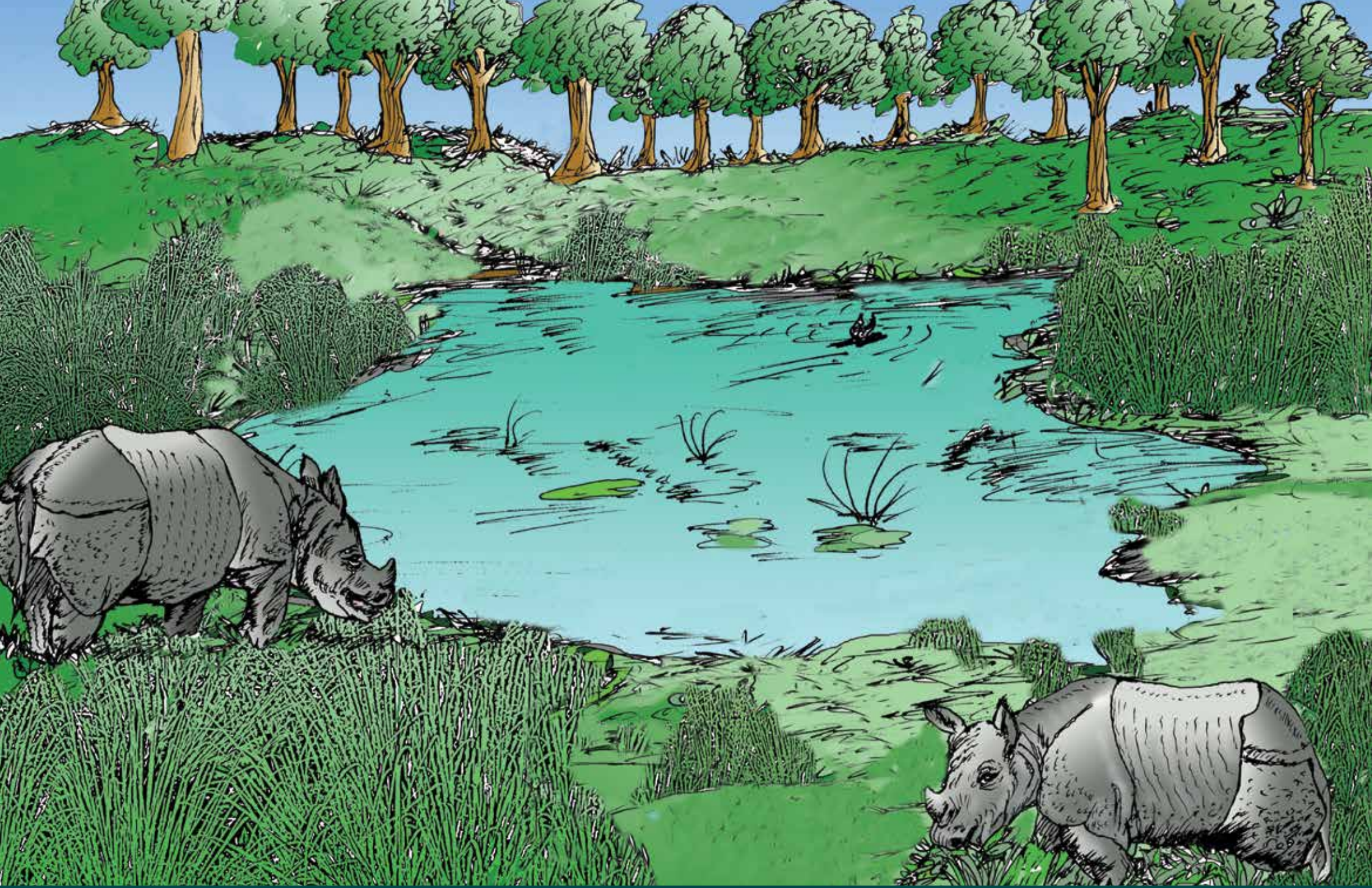
5 Invasive alien plant species found in forests

6 Invasive alien plant species found in grasslands

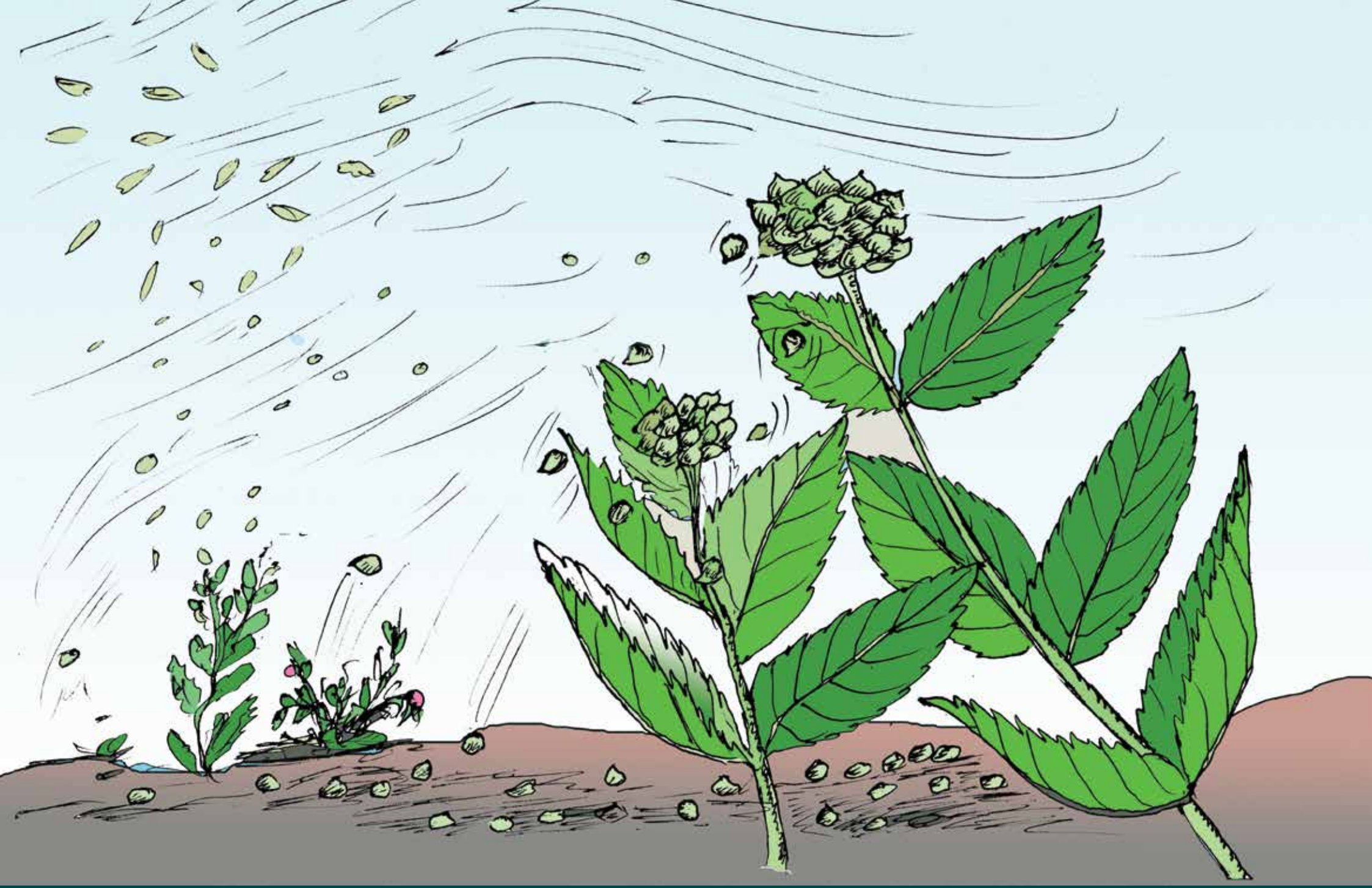


7 Invasive alien plant species found in wetlands

8 Invasive alien plant species found in residential area

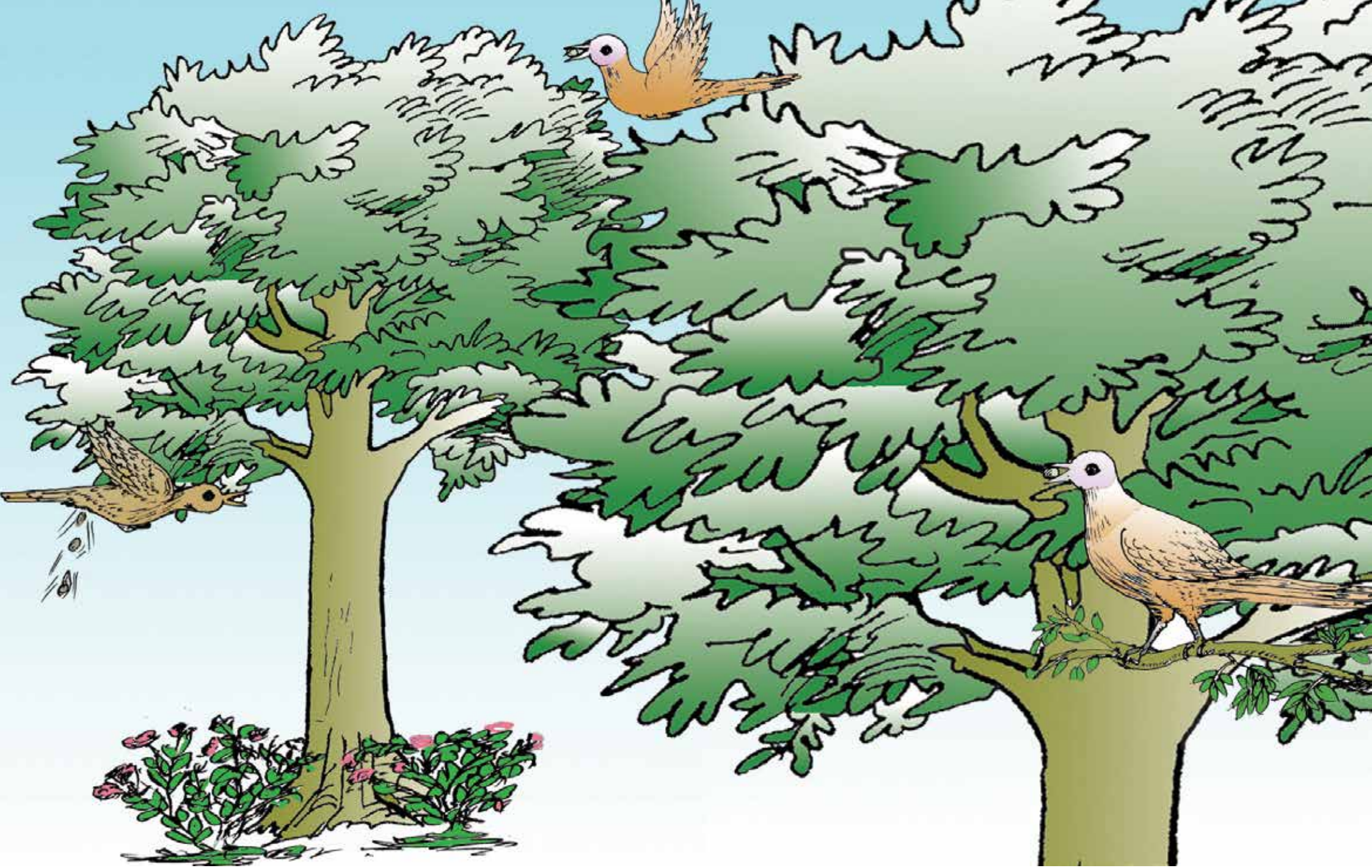


9 Wetland area with no invasive alien plant species



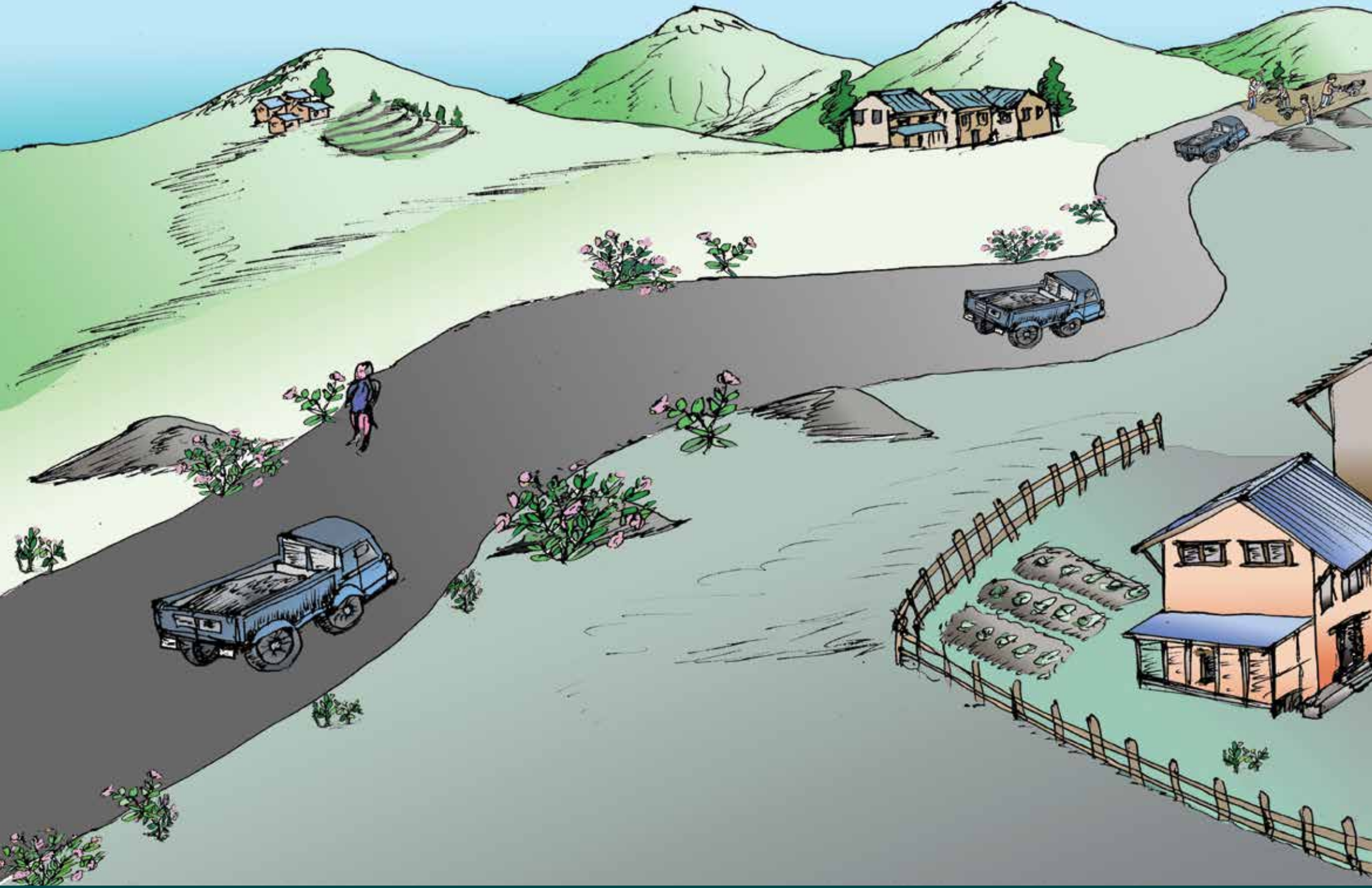
10 Spreads through seed

11 Spreads through vegetative parts

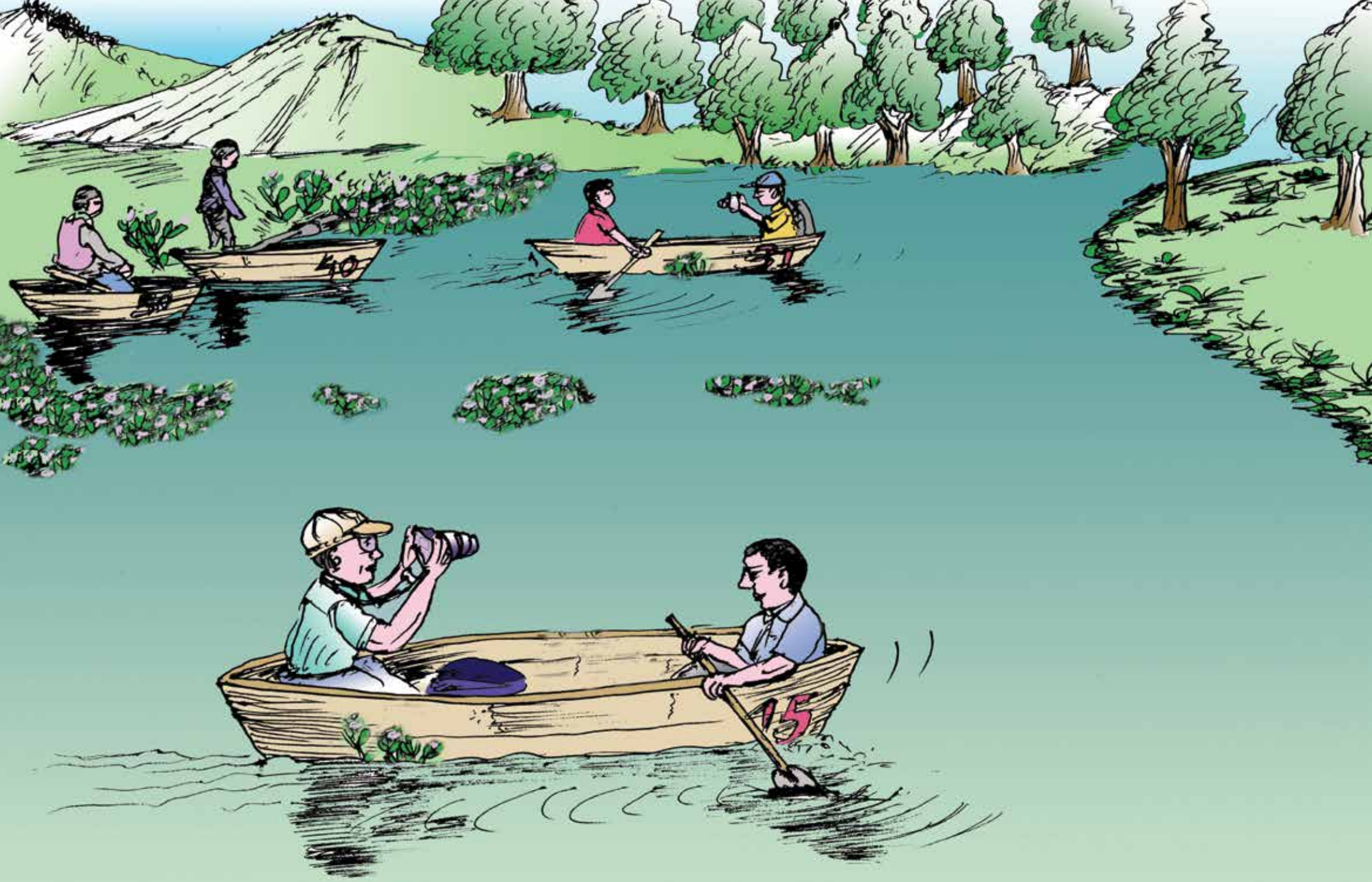


12 Seed spreads through birds eating fruits and through their excreta

13 Livestock carrying seeds of invasive alien plant species on their body



14 Invasive alien plant species spreads along road


40
15

15 Recreational activities like boating also spreads invasive alien plant species

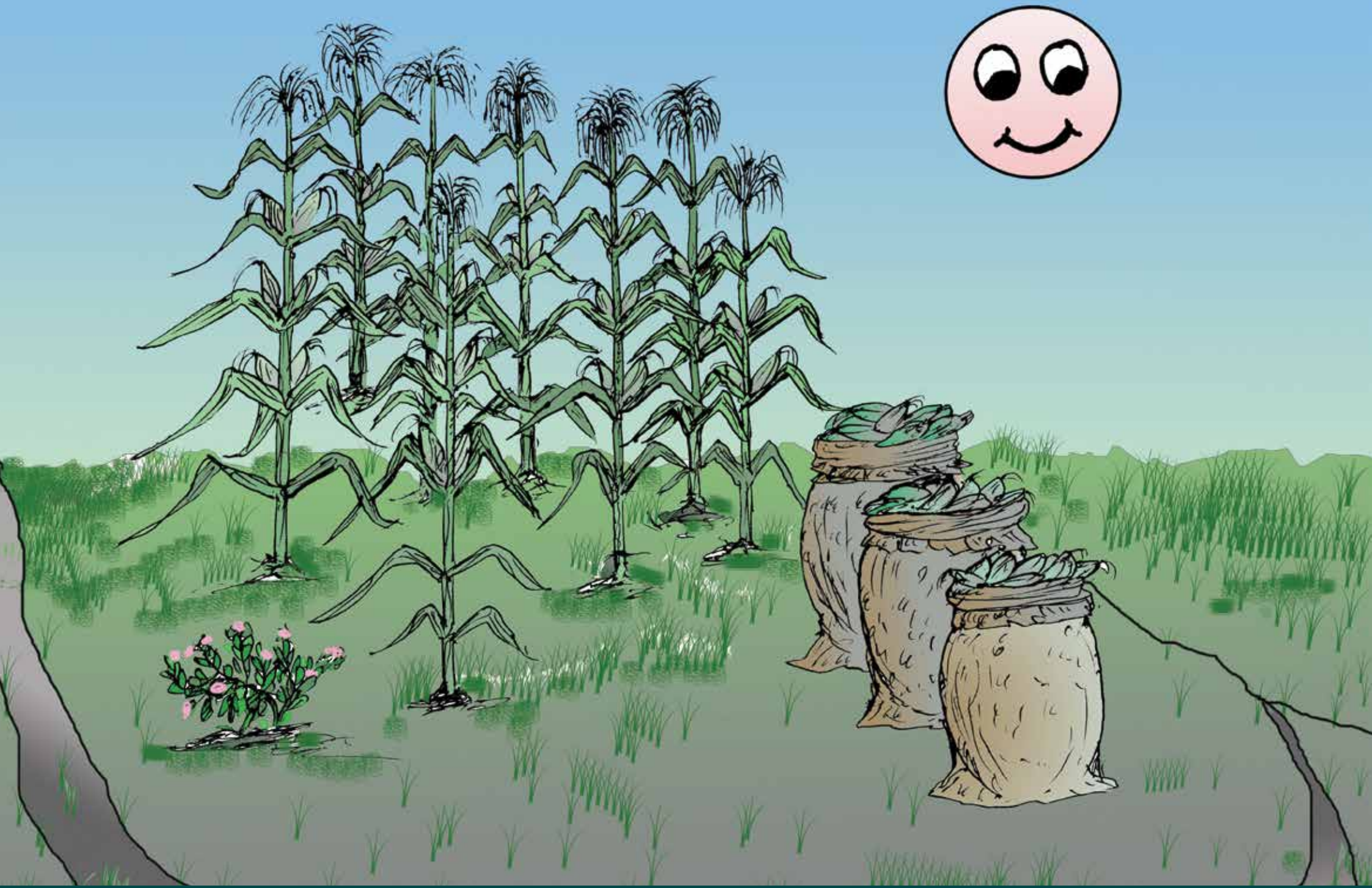

Seed
Distribution
Programme
seed

16 Seed distribution from one place to another (which may have invasive alien plant species seeds as well)

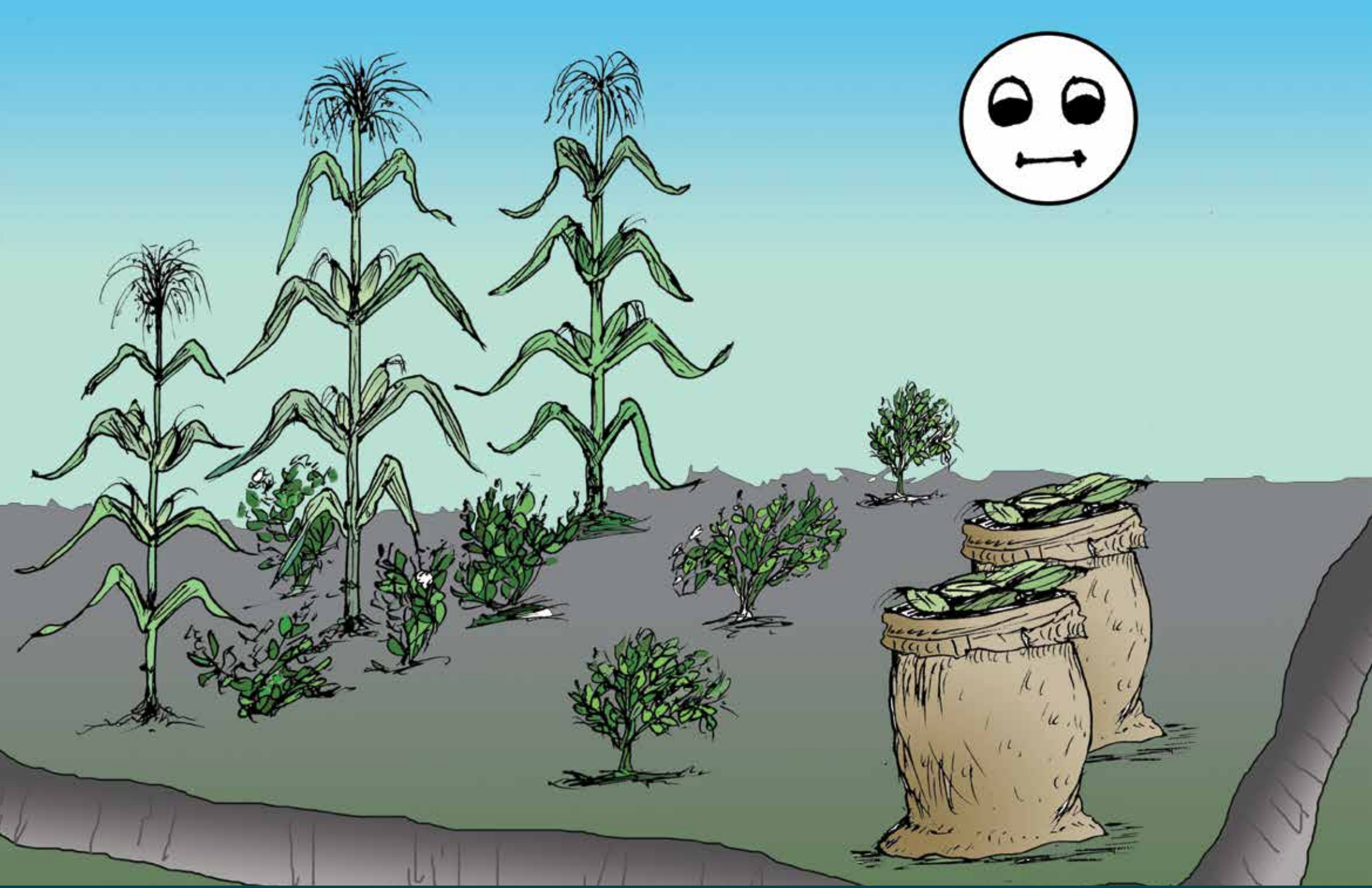
17 Grassland area without invasive alien plant species

18 Sick and haggard animal

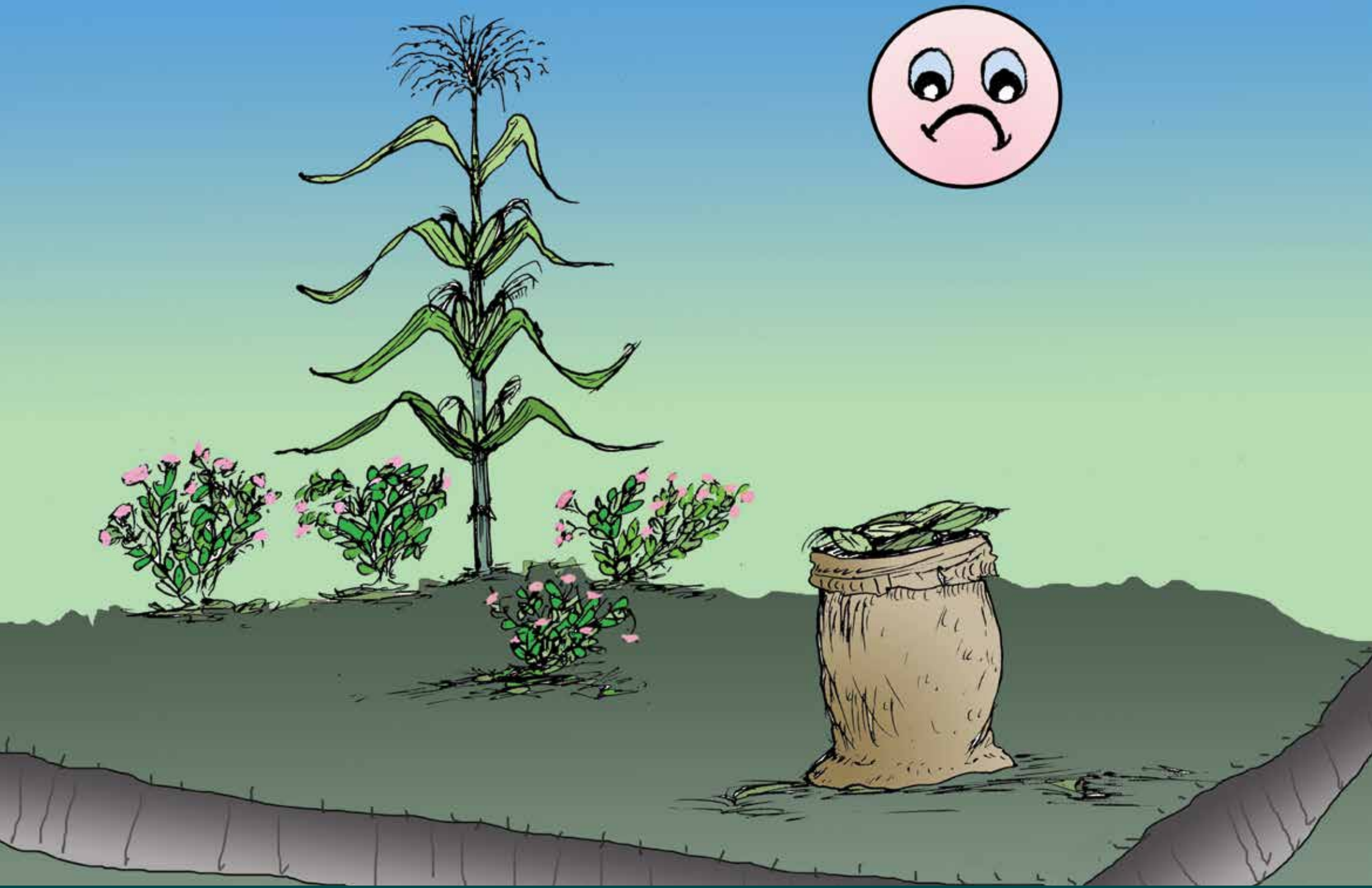
19 Tiresome and labour intensive weeding



20 High productivity

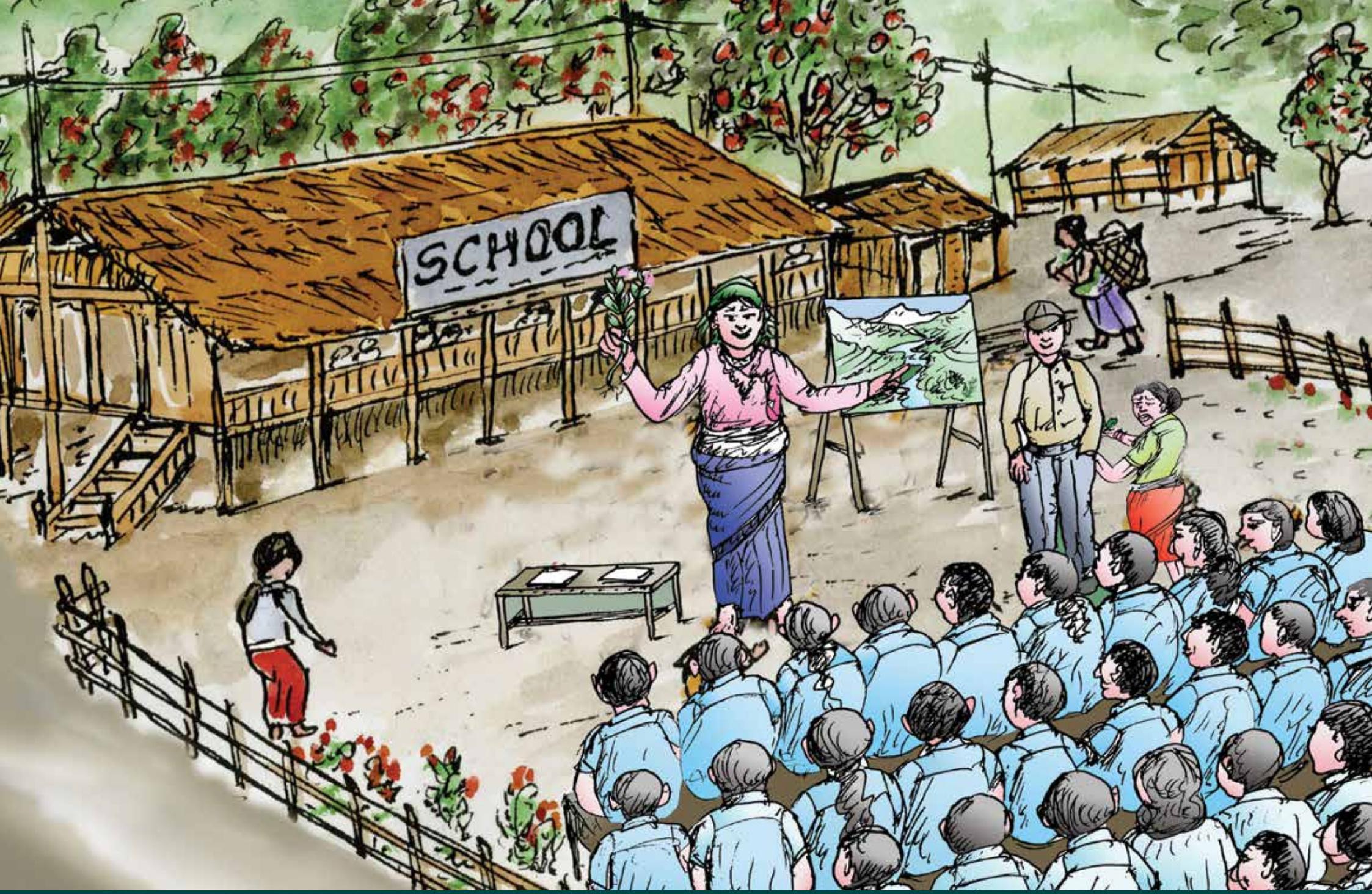


21 Medium productivity



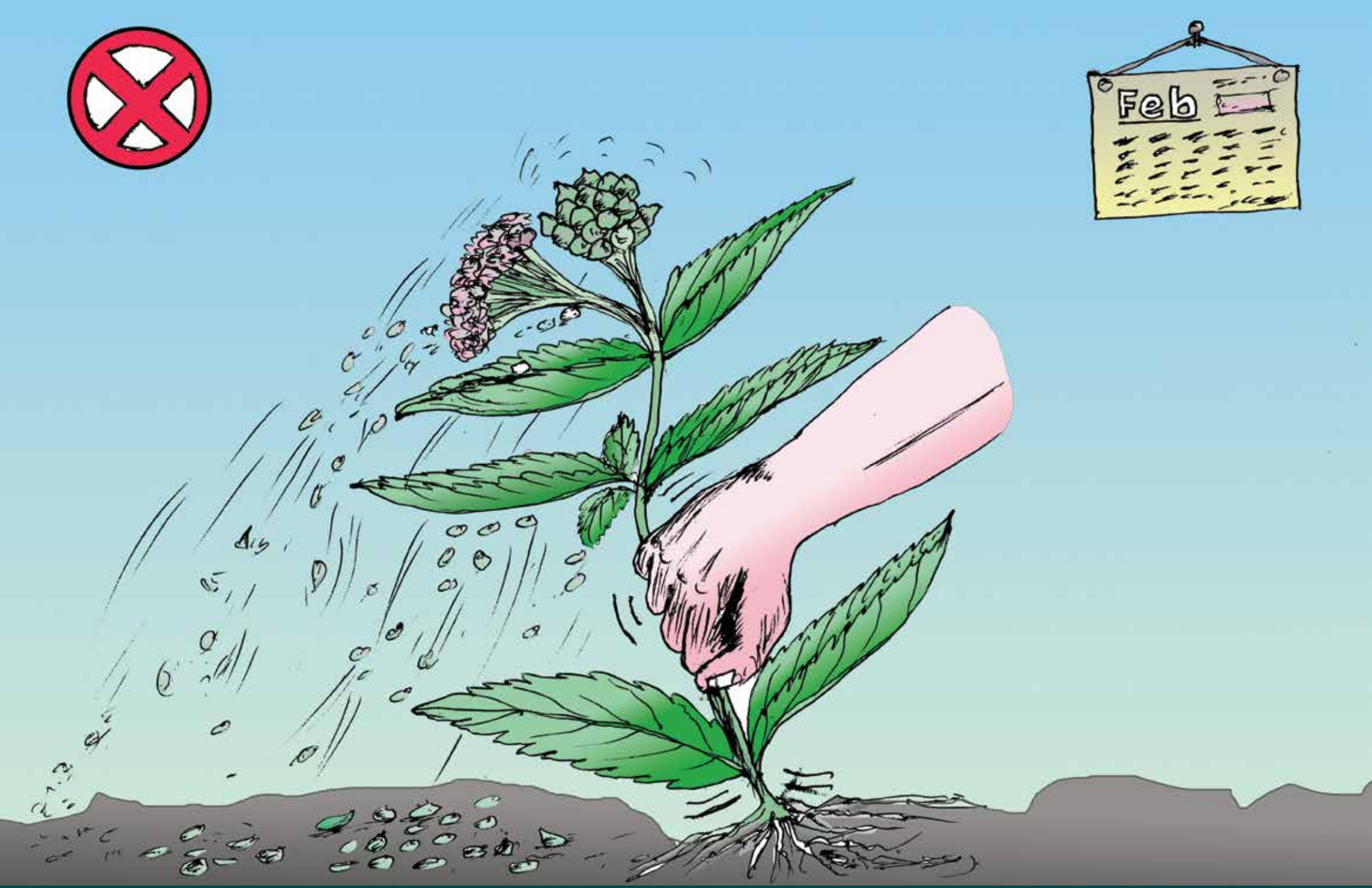
22 Low productivity

23 Invasive alien plant species causing skin allergy and health issue


SCHOOL

24 Awareness raising program in school

25 Awareness raising program to local community


Feb

26 Don’t cut or uproot invasive alien plant species when they are flowering


Jan

27 Uproot invasive alien plant species before flowering

28 Make use of invasive alien plant species by making compost

29 Invasive alien plant species can be used to prepare bio-briquettes

30 Some invasive alien plant species can be used to prepare furniture/handicrafts

31 Plant native species after removing invasive alien plant species