



Pesky Plants Training

Session 3 Knotweeds

April 5/7, 2021

Abbie Anderson

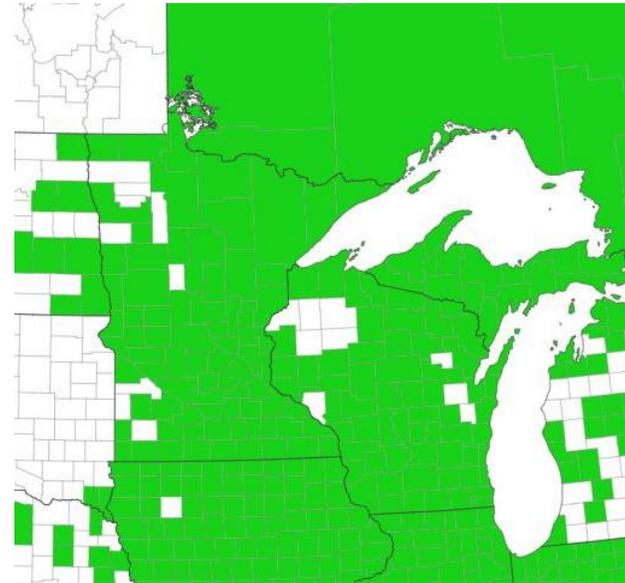
Rebecca Montgomery, Byju Govindan, Stephan Carlson
University of Minnesota, Department of Forest Resources



2 types of observers

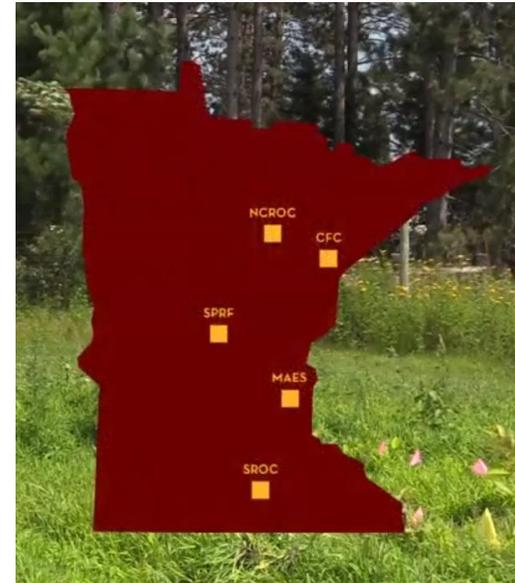
“general” volunteer

- Record phenology



Field Site volunteer

- Record phenology
- Prevent spread





Knotweeds

- Identification & marking
- Phenophases yes/no
- Phenophase intensity
- Data collection

Knotweeds

- tall (up to ~9')
- shade tolerant
- perennial (live several years)



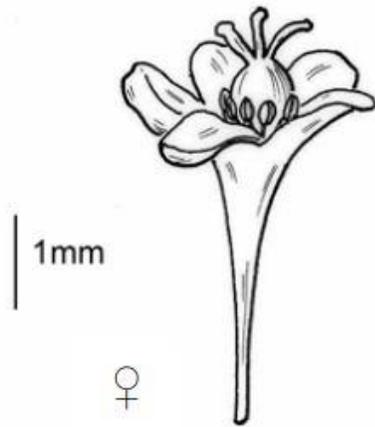
Stems

- “bamboo-like”
- hollow
- jointed
- hairless
- not woody



Flowers

- compound
- white (usually)
- 5 petals



Japanese
♀ only



Leaves

- simple
- alternate
- variations in size & shape



Giant *(rare in MN)*



Hybrid
Bohemian



Japanese



Japanese
compacta



4 kinds of knotweed

Photo by matthieu_gauvain via iNaturalist

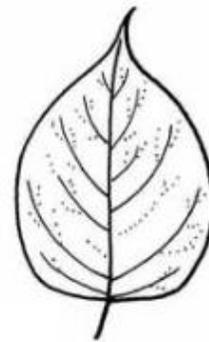


Japanese
knotweed





Japanese
knotweed



var. compacta
i.e., dwarf
Japanese
knotweed





Photo by Diane Grey



Photo by AB, citizen scientist

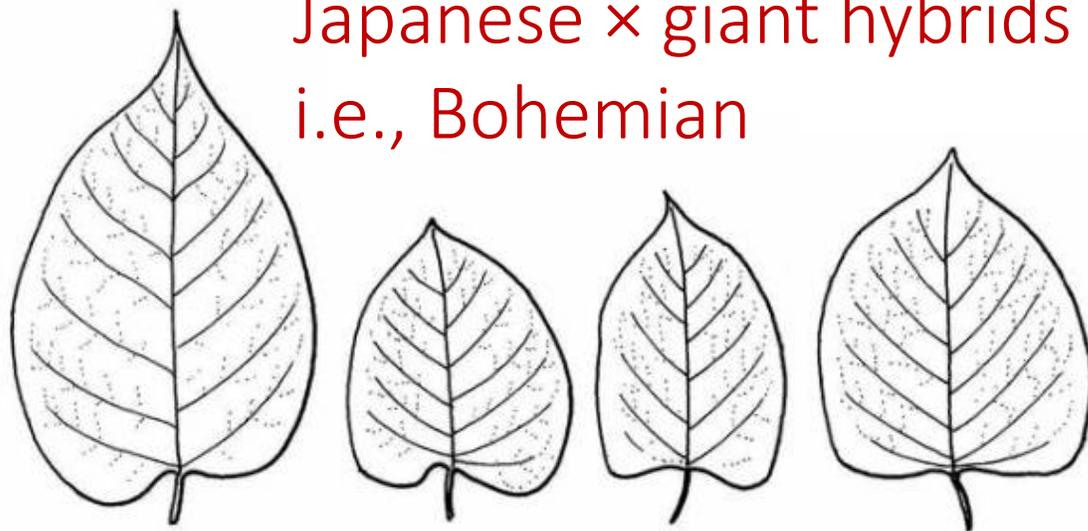


Photo by matthieu_gauvain via iNaturalist



Photo by Elizabeth Heeren

Japanese × giant hybrids
i.e., Bohemian



Japanese
knotweed



var. compacta
i.e., dwarf
Japanese
knotweed



Knotweeds can be confusing, but . . .

- 1: First step is fairly easy: is it a knotweed or not?
- 2: Once you have a knotweed, *prioritize phenology observations.*
- 3: Where there's a knotweed, *there's a way.*
- 4: Don't feel stressed - *do your best.*



Where does my plant begin or end?

usanpn.org/nn/faq#patch



Mark a patch



**roughly
3' x 3'**



**roughly
3' x 3'**



- Identification & marking
- Phenophases yes/no
- Phenophase intensity
- Data collection

phenophases

observable life cycle events

phenophases

Leaves

- 1: Initial growth
- 2: Leaves

1: Initial growth

2: Leaves

Flowers

- 3: Flowers or flower buds
- 4: Open flowers

3: Flowers or flower buds

4: Open flowers

Fruits

- 5: Fruits
- 6: Ripe fruits
- 7: Recent fruit or seed drop

5: Fruits

6: Ripe fruits

7: Recent fruit or seed drop

March



phenophases

1: Initial growth

2: Leaves

3: Flowers or flower buds

4: Open flowers

5: Fruits

6: Ripe fruits

7: Recent fruit
or seed drop

Leaves

1: Initial growth
2: Leaves

Flowers

3: Flowers or
flower buds
4: Open flowers

Fruits

5: Fruits
6: Ripe fruits
7: Recent fruit
or seed drop

7

always 7!

phenophases

Leaves

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or seed drop

**are
precisely
defined**

phenophases

Leaves

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2: Leaves

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Fruits

- 5: Fruits
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start
& end

phenophases

Leaves

- 1: Initial growth
- 2: Leaves

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2: Leaves

Flowers

- 3: Flowers or flower buds
- 4: Open flowers

3: Flowers or flower buds

4: Open flowers

Fruits

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- 7: Recent fruit or seed drop

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7: Recent fruit or seed drop

**can
overlap**

phenophases

1: Initial growth

2: Leaves

3: Flowers or flower buds

4: Open flowers

5: Fruits

6: Ripe fruits

7: Recent fruit
or seed drop

Leaves

1: Initial growth

2: Leaves

Flowers

3: Flowers or
flower buds

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Fruits

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or seed drop

**change
in intensity**



Definitions:

- *Nature's Notebook* mobile app
- *Nature's Notebook's* website
- *Nature's Notebook's* paper datasheets

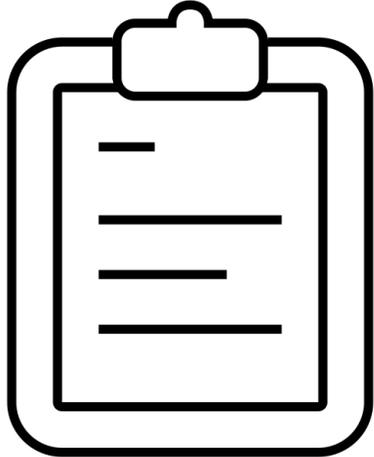
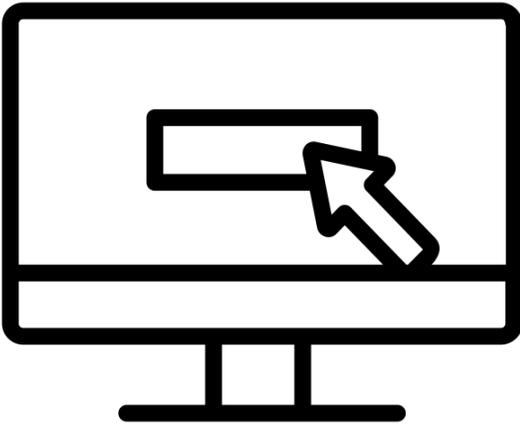
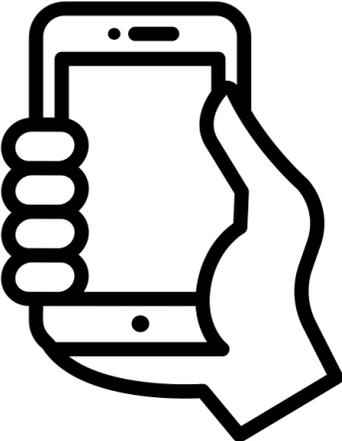
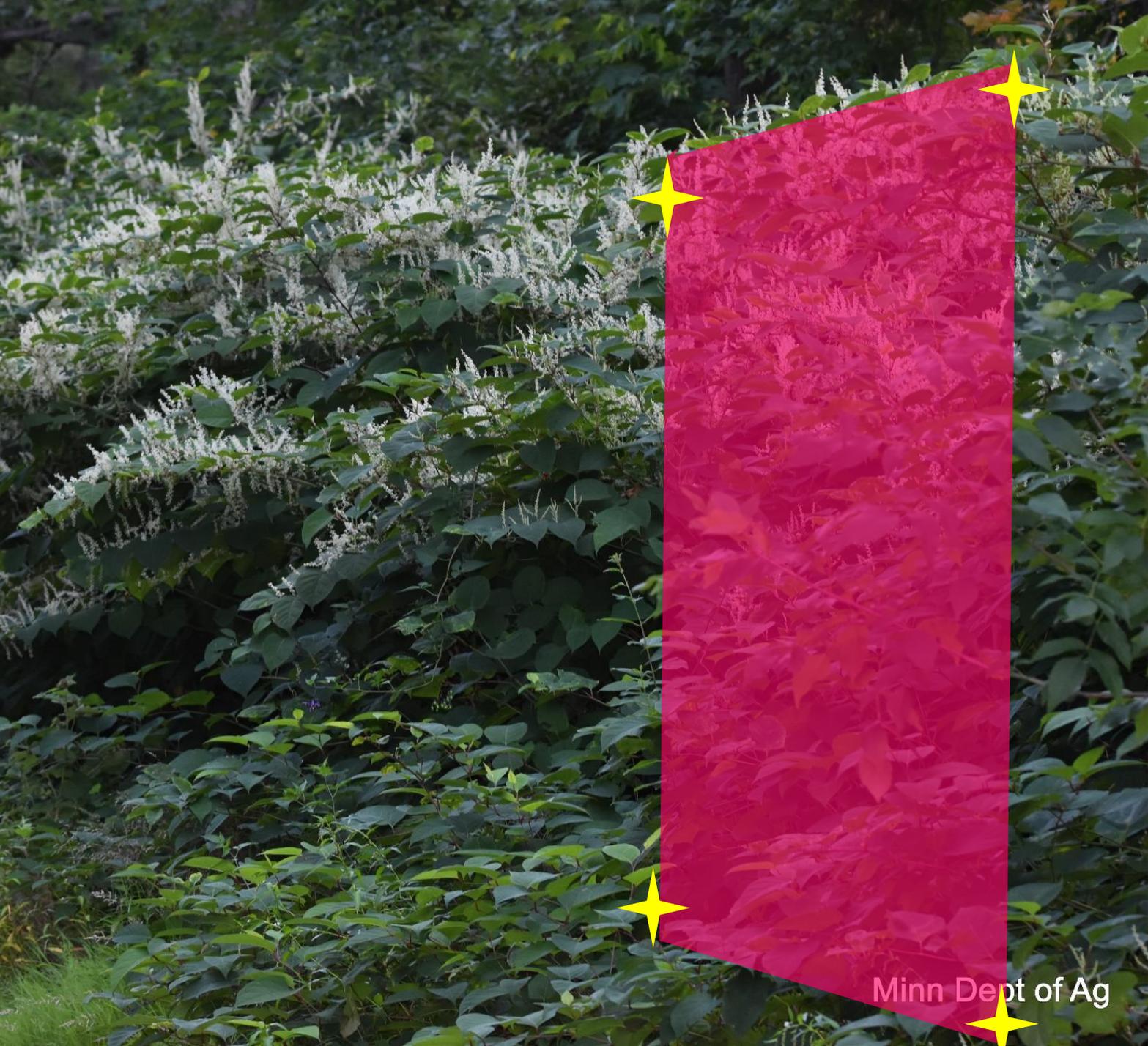




Photo by Krzysztof Ziarnek, Kenraiz via Wikimedia Commons, CC BY-SA 4.0

Assess
the *whole*
patch



Assess
the *whole*
patch

Leaves

- 1: Initial growth
- 2: Leaves

1: Initial growth

2: Leaves

Flowers

- 3: Flowers or flower buds
- 4: Open flowers

3: Flowers or flower buds

4: Open flowers

Fruits

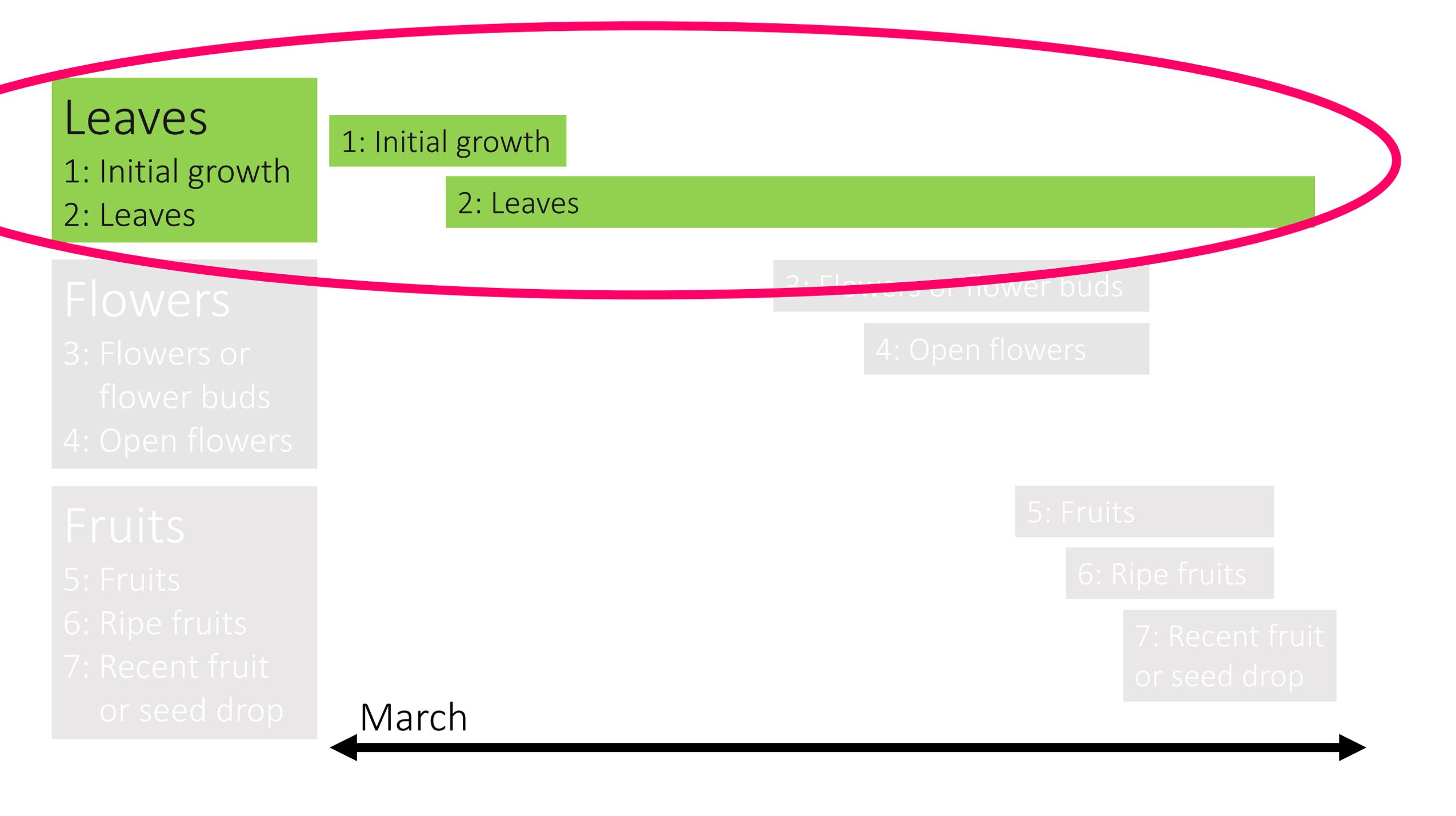
- 5: Fruits
- 6: Ripe fruits
- 7: Recent fruit or seed drop

5: Fruits

6: Ripe fruits

7: Recent fruit or seed drop

March



1: Initial growth

fall?

early
March?

2: Leaves

2 leaf phenophases

2 Yes/No questions

no intensity measures

1: Initial growth

New growth of the plant is visible after a period of no growth (winter or drought), either from above-ground buds with green tips, or new green or white shoots breaking through the soil surface. Growth is considered "initial" on each bud or shoot until the first leaf has fully unfolded. For seedlings, "initial" growth includes the presence of the one or two small, round or elongated leaves (cotyledons) before the first true leaf has unfolded.

[More...](#)



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[More...](#)

key word:
shoots



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[More...](#)



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[More...](#)



Photo by brcevans via iNaturalist

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[More...](#)



Knotweed: several shoots per rhizome or per patch



Wild parsnip: one shoot per root

Photo by Krzysztof
Wikimedia Commons

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[More...](#)

Photo by brcevans via iNaturalist



judge each shoot *separately*

Photo by brcevans via
iNaturalist



Photo by AnRo0002 via Wikimedia C

judge each shoot *separately*

2 shoots: No
“initial growth”

1 shoot: Yes
“initial growth”



Photo by brcevans via
iNaturalist

judge each shoot *separately*

Assess patch as a whole:

Intitial growth
phenophase? **Yes**

Leaves phenophase? **Yes**



Photo by AnRo0002 via Wikimedia C

1: Initial growth

2: Leaves

In knotweeds (unlike wild parsnip), the 2 leaf phenophases *can overlap!*

- Wild parsnip has only one shoot.
- Japanese knotweed tends to have *multiple shoots*.
- Judge each shoot separately.

1: Initial growth



2: Leaves

2: Leaves

One or more live, fully unfolded leaves are visible on the plant. For seedlings, consider only true leaves and do not count the one or two small, round or elongated leaves (cotyledons) that are found on the stem almost immediately after the seedling germinates. Do not include fully dried or dead leaves.

[More ...](#)



2: Leaves

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[More ...](#)



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More ...



2: Leaves

WHEN SHOULD I REPORT I NO LONGER SEE 'LEAVES'?

You should continue to report seeing 'Leaves' as long as fresh green or colored leaves/needles remain on the plant.

Do not include dried, dead leaves that remain on the plant, such as occurs with some species throughout the dormant season (e.g. winter or dry season).

In some cases, green leaves will remain on the plant in a frozen condition for part or all of the winter. If more than about 5% of the leaves have remained on the plant in this condition, you should continue to report seeing 'Leaves' until they fall off or appear wilted.



2: Leaves

One or more live, fully unfolded leaves are visible on the plant. For seedlings, consider only true leaves and do not count the one or two small, round or elongated leaves (cotyledons) that are found on the stem almost immediately after the seedling germinates. Do not include fully dried or dead leaves.

[More ...](#)



No.

Photo by Elizabeth Heeren

Leaves
1: Initial growth
2: Leaves

1: Initial growth

2: Leaves

Flowers
3: Flowers or flower buds
4: Open flowers

3: Flowers or flower buds

4: Open flowers

Fruits
5: Fruits
6: Ripe fruits
7: Recent fruit or seed drop

5: Fruits

6: Ripe fruits

7: Recent fruit or seed drop



3: Flowers or flower buds

August?

4: Open flowers

September?

2 flower phenophases

2 Yes/No questions

3: Flowers or flower buds

3: Flowers or flower buds

This is *NOT* asking you to *choose* if what you see are “flower buds” or “flowers.”

Report “Yes” for ‘Flowers or flower buds’ *as soon as* you see something that is recognizable as a flower structure.



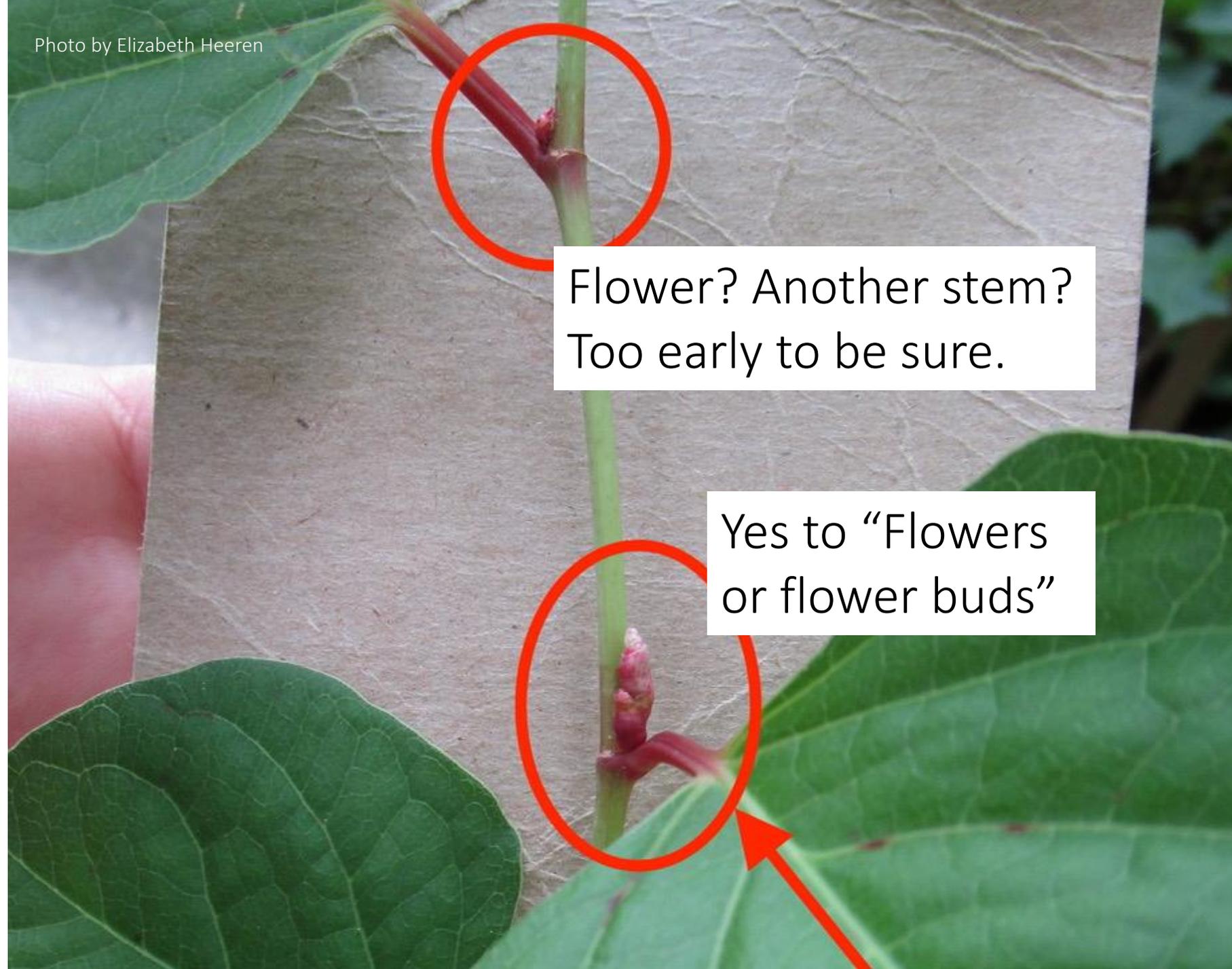
Photo by Elizabeth Heeren

3: Flowers or flower buds

One or more fresh open or unopened flowers or flower buds are visible on the plant. Include flower buds or inflorescences that are swelling or expanding, but do not include those that are tightly closed and not actively growing (dormant). Also do not include wilted or dried flowers.

[More ...](#)

Photo by Elizabeth Heeren



Flower? Another stem?
Too early to be sure.

Yes to "Flowers
or flower buds"

3: Flowers or flower buds

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[More ...](#)



buds we see are *active*

3: Flowers or flower buds

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[More ...](#)



Photo by Elizabeth Heeren

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[More ...](#)



Photo by A.B.

3: Flowers or flower buds

4: Open flowers

4: Open flowers

4: Open flowers

One or more open, fresh flowers are visible on the plant. Flowers are considered "open" when the reproductive parts (male stamens or female pistils) are visible between or within unfolded or open flower parts (petals, floral tubes or sepals). Do not include wilted or dried flowers.

[More ...](#)



3: Flowers or flower buds



4: Open flowers

4: Open flowers

One or more open, fresh flowers are visible on the plant. Flowers are considered "open" when the reproductive parts (male stamens or female pistils) are visible between or within unfolded or open flower parts (petals, floral tubes or sepals). Do not include wilted or dried flowers.

[More ...](#)

3: Flowers or flower buds? **Yes.**
4: Open flowers? **Yes.**



4: Open flowers

One or more open, fresh flowers are visible on the plant. Flowers are considered "open" when the reproductive parts (male stamens or female pistils) are visible between or within unfolded or open flower parts (petals, floral tubes or sepals). Do not include wilted or dried flowers.

[More ...](#)

3: Flowers or flower buds? **Yes.**
4: Open flowers? **Yes.**



A close-up photograph of a plant branch with several small, white, tubular flowers hanging from it. The flowers are arranged in clusters along the stem. A spider web is visible in the lower right portion of the image. The background is a soft, out-of-focus green. A white rectangular box with red text is overlaid on the upper left side of the image.

When do flowers end?

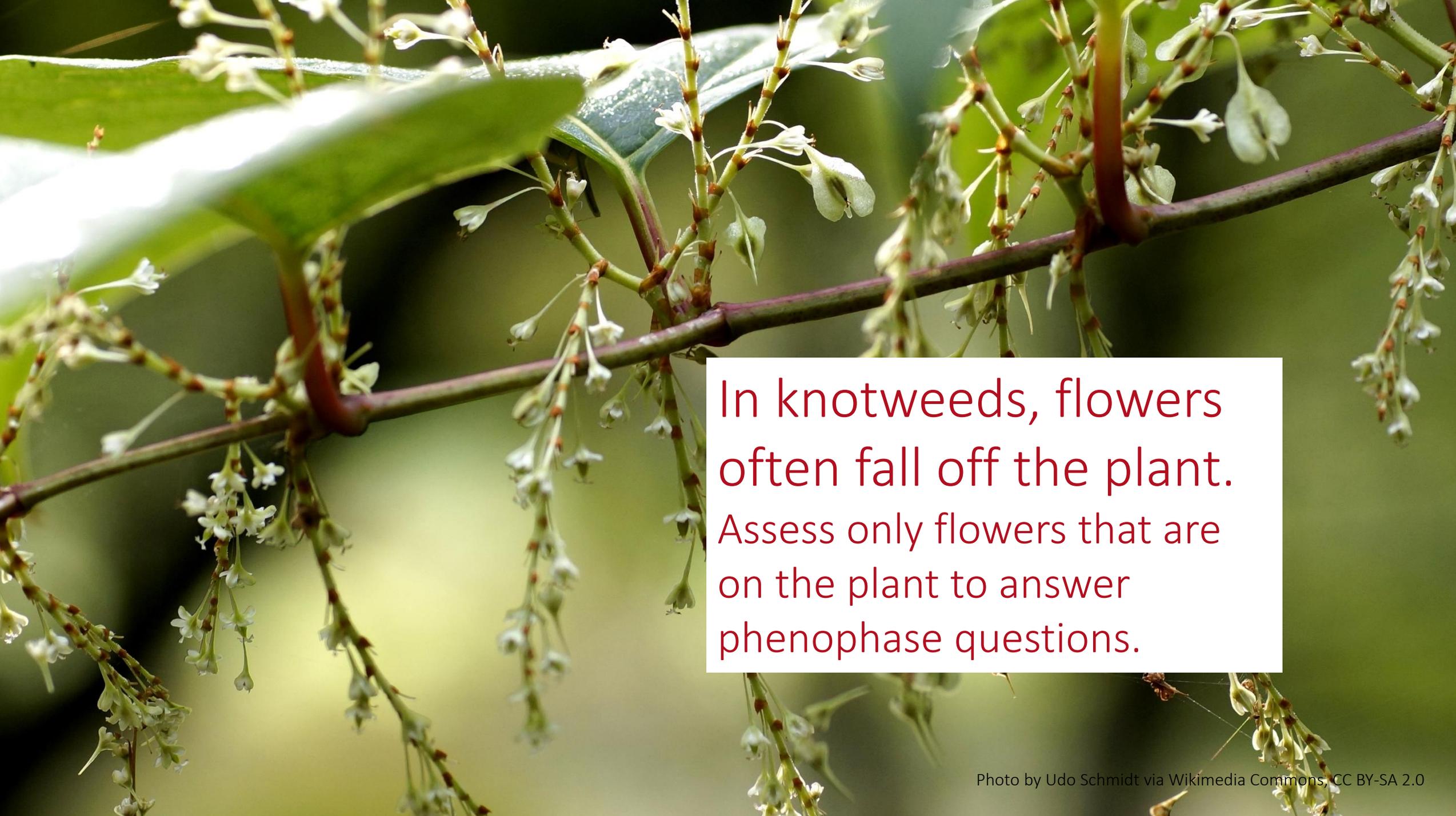


When do flowers end?

When do we report “No” for “Flowers or flower buds” & “Open flowers”?



A “spent” flower is no longer “fresh” or active. Recognize it by withered and dried floral parts, petals drying and dropped off.



In knotweeds, flowers often fall off the plant. Assess only flowers that are on the plant to answer phenophase questions.



3: Flowers or flower buds?
Yes. (a few remain)

4: Open flowers?
Yes. (a few remain)







Leaves
1: Initial growth
2: Leaves

1: Initial growth

2: Leaves

Flowers
3: Flowers or flower buds
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3: Flowers or flower buds

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Fruits
5: Fruits
6: Ripe fruits
7: Recent fruit or seed drop

5: Fruits

6: Ripe fruits

7: Recent fruit or seed drop



5: Fruits

September?

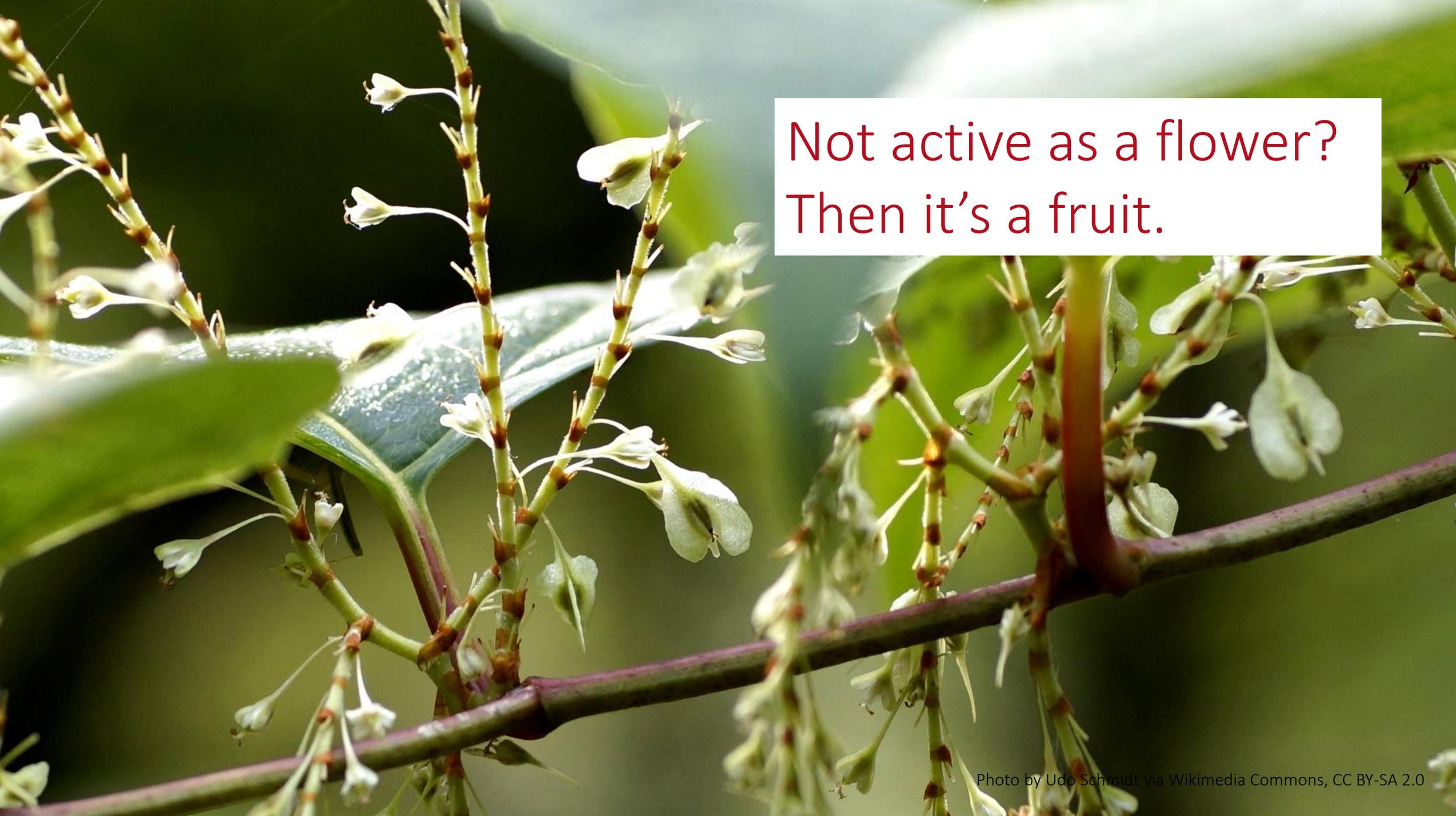
6: Ripe fruits

January?

7: Recent fruit or seed drop

3 fruit phenophases

3 Yes/No questions

A close-up photograph of a plant stem with several small, pale, tubular flowers and developing fruits. The stem is reddish-brown and has small, brown, scale-like structures at the nodes. The background is a soft, out-of-focus green.

Not active as a flower?
Then it's a fruit.

Photo by Elizabeth Heeren

Not active as a flower?
Then it's a fruit.



5: Fruits

One or more fruits are visible on the plant. For *Fallopia japonica*, the fruit is tiny and capsule-like, maturing to shiny black-brown, and is enclosed within remnant flower parts that become tan, papery "wings".

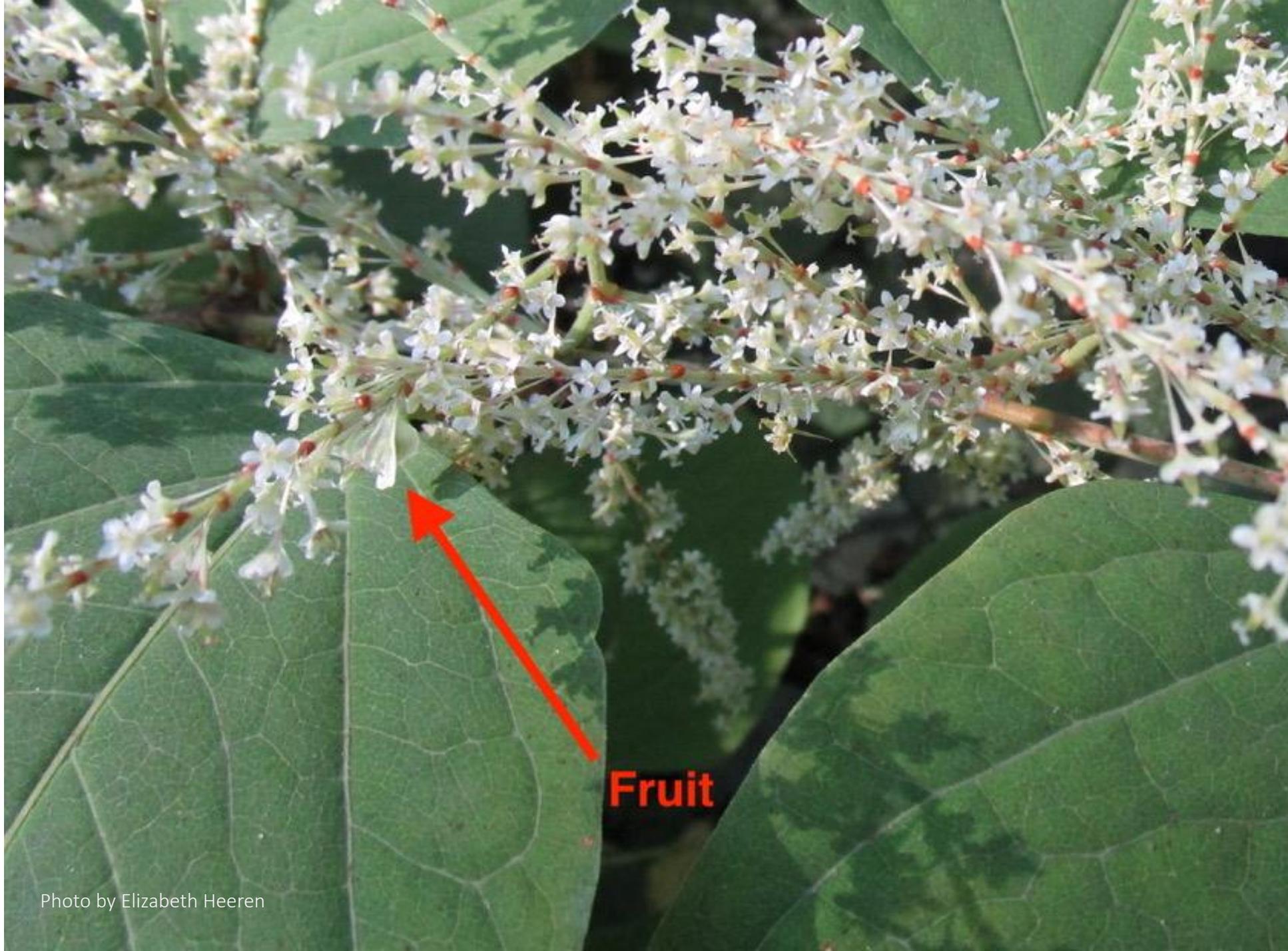
[More ...](#)



5: Fruits

One or more fruits are visible on the plant. For *Fallopia japonica*, the fruit is tiny and capsule-like, maturing to shiny black-brown, and is enclosed within remnant flower parts that become tan, papery "wings".

[More ...](#)



5: Fruits

One or more fruits are visible on the plant. For *Fallopia japonica*, the fruit is tiny and capsule-like, maturing to shiny black-brown, and is enclosed within remnant flower parts that become tan, papery "wings".

[More ...](#)



Photo by Barbara Tokarska-Guzik, University of Silesia via Wikimedia Commons, CC BY 3.0 us

5: Fruits

One or more fruits are visible on the plant. For *Fallopia japonica*, the fruit is tiny and capsule-like, maturing to shiny black-brown, and is enclosed within remnant flower parts that become tan, papery "wings".

More ...



Photo by Elizabeth Heeren

5: Fruits

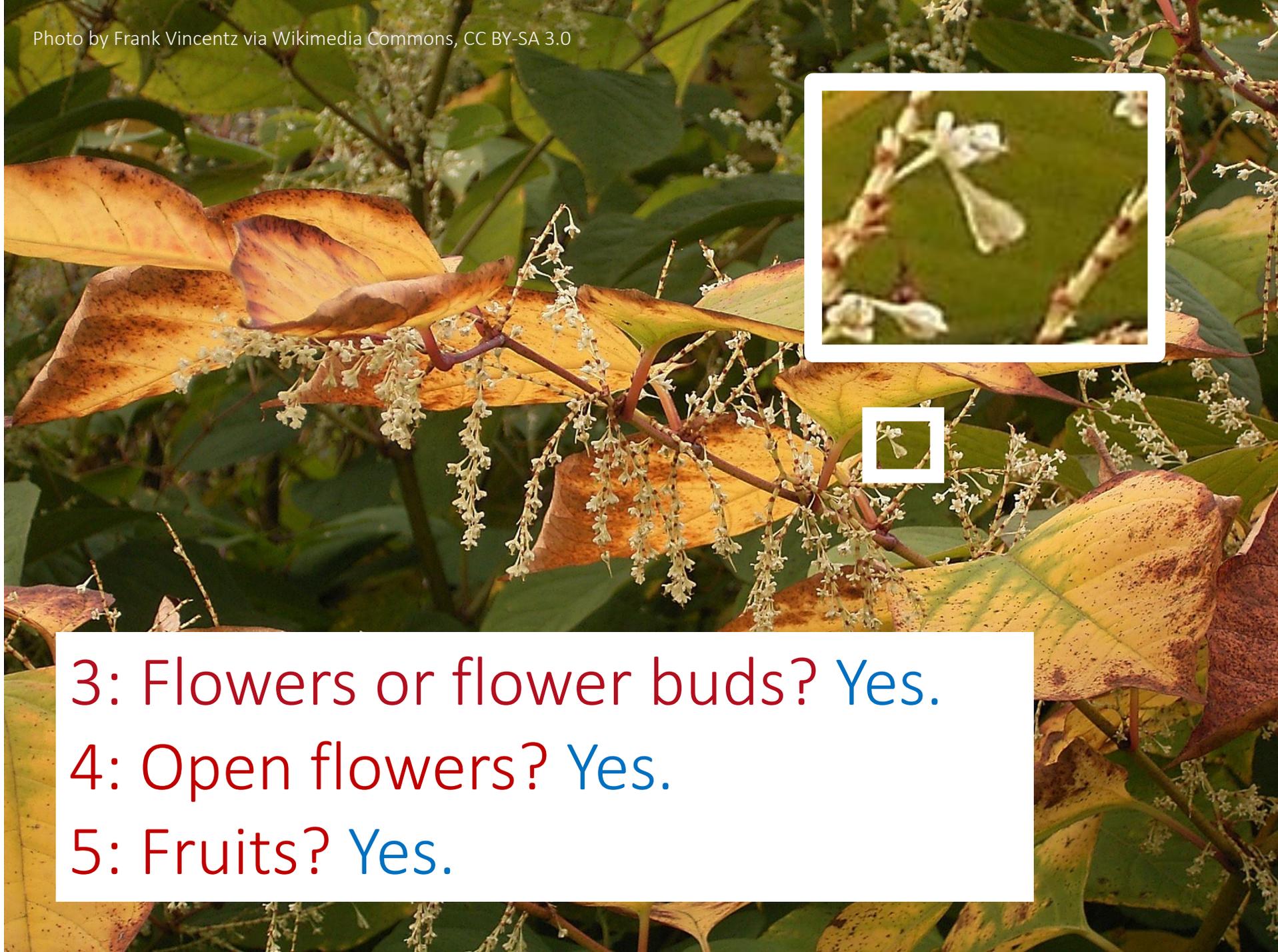
One or more fruits are visible on the plant. For *Fallopia japonica*, the fruit is tiny and capsule-like, maturing to shiny black-brown, and is enclosed within remnant flower parts that become tan, papery "wings".

[More ...](#)

3: Flowers or flower buds? **Yes.**

4: Open flowers? **Yes.**

5: Fruits? **Yes.**



6: Ripe fruits

For *Fallopia japonica*, a fruit is considered ripe when its outer covering has turned tan, dry and papery.

[More ...](#)



5: Fruits



6: Ripe fruits

6: Ripe fruits

For *Fallopia japonica*, a fruit is considered ripe when its outer covering has turned tan, dry and papery.

More ...



5: Fruits? Yes.

6: Ripe fruits? Yes.

7: Recent fruit or seed drop

Answer “yes” to the
“recent drop”
phenophase *if* ripe
fruits have dropped
since your last visit.

7: Recent fruit or seed drop

One or more mature fruits or seeds have dropped or been removed from the plant **since your last visit**. Do not include obviously immature fruits that have dropped before ripening, such as in a heavy rain or wind, or empty fruits that had long ago dropped all of their seeds but remained on the plant.

[More ...](#)



Photo by A.B.

7: Recent fruit or seed drop

One or more mature fruits or seeds have dropped or been removed from the plant since your last visit. Do not include obviously immature fruits that have dropped before ripening, such as in a heavy rain or wind, or empty fruits that had long ago dropped all of their seeds but remained on the plant.

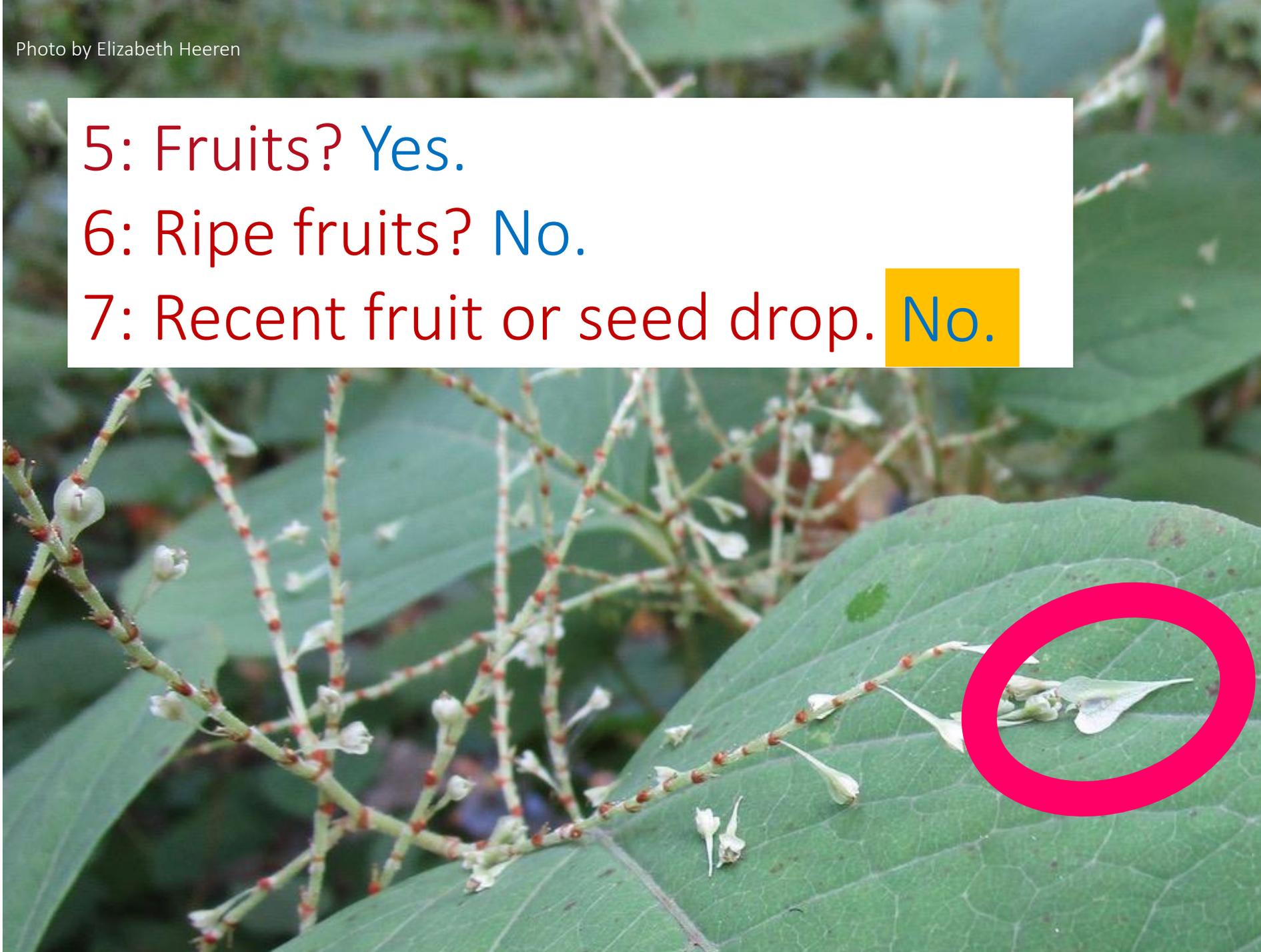
[More ...](#)

Photo by Elizabeth Heeren

5: Fruits? Yes.

6: Ripe fruits? No.

7: Recent fruit or seed drop. No.



Strategies for challenging observations:

- Do your best.
- Check *Nature's Notebook* for definitions & guidance.
- Unsure?
 - Use paper datasheets. Take notes. Take photos.
 - When unsure, use the “?” answer choice.
- *Trust yourself.* Your acquired knowledge about your plant is your best tool.
- *Do your best.*

8 practice images

For each image, answer 7 yes/no questions

- 1: Initial growth?
- 2: Leaves?
- 3: Flowers or flower buds?
- 4: Open flowers?
- 5: Fruits?
- 6: Ripe fruits?
- 7: Recent fruit or seed drop?

1

Photo by Petr Vilgus via Wikimedia Commons, CC BY 2.5



1



1: Initial growth? Yes, maybe? Check whole patch.

See how important the patch markers are?

2: Leaves? Yes.

3: Flowers or flower buds? No.

4: Open flowers? No.

5: Fruits? No.

6: Ripe fruits? No.

7: Recent fruit or seed drop? No.



2



Photo by Elizabeth Heeren

2

- 1: Initial growth? No? Check.
- 2: Leaves? Yes.
- 3: Flowers or flower buds? Yes.
- 4: Open flowers? No.
(Check whole patch.)
- 5: Fruits? No.
- 6: Ripe fruits? No.
- 7: Recent fruit or seed drop? No.



Photo by AnRo0002 via
Wikimedia Commons
CC0



Photo by Elizabeth Heeren

3



Photo by Kyle Gill

Photo by Kyle Gill

3



- 1: Initial growth? No (but always check for shoots).
- 2: Leaves? No. (Not “fresh green,” but always check.)
- 3: Flowers or flower buds? No.
- 4: Open flowers? No.
- 5: Fruits? No.
- 6: Ripe fruits? No.
- 7: Recent fruit or seed drop? No.

4

Photo by Andrea Moro,
Comune di Padova, Orto
Botanico, Veneto, Italia via
Wikimedia Commons, CC BY-
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4

Photo by Andrea Moro,
Comune di Padova, Orto
Botanico, Veneto, Italia via
Wikimedia Commons, CC BY-
SA 4.0

- 1: Initial growth? No? Check patch.
- 2: Leaves? Yes.
- 3: Flowers or flower buds? Yes.
- 4: Open flowers? Yes.
- 5: Fruits? No. (Check whole patch.)
- 6: Ripe fruits? No.
- 7: Recent fruit or seed drop? No.

5



Photo by Wohlert Wohlers via Wikimedia Commons, CC BY-SA 3.0

5

- 1: Initial growth? No. (not in photo.)
- 2: Leaves? Yes.
- 3: Flowers or flower buds? Yes.
- 4: Open flowers? No.
- 5: Fruits? No.
- 6: Ripe fruits? No.
- 7: Recent fruit or seed drop? No.



6



Photo by Marie Portas via Wikimedia Commons, CC BY-SA 2.0 fr

6



1. Initial growth? No. (not in photo)
2. Leaves? Yes.
3. Flowers or flower buds? No.
4. Open flowers? No.
5. Fruits? Yes.
6. Ripe fruits? No.
7. Recent fruit or seed drop? No.

7



Photo by Elizabeth Heeren

7

1. Initial growth? No. (not in photo)
2. Leaves? Yes.
3. Flowers or flower buds? Yes.
4. Open flowers? Yes.
5. Fruits? Yes.
6. Ripe fruits? No.
7. Recent fruit or seed drop? No.



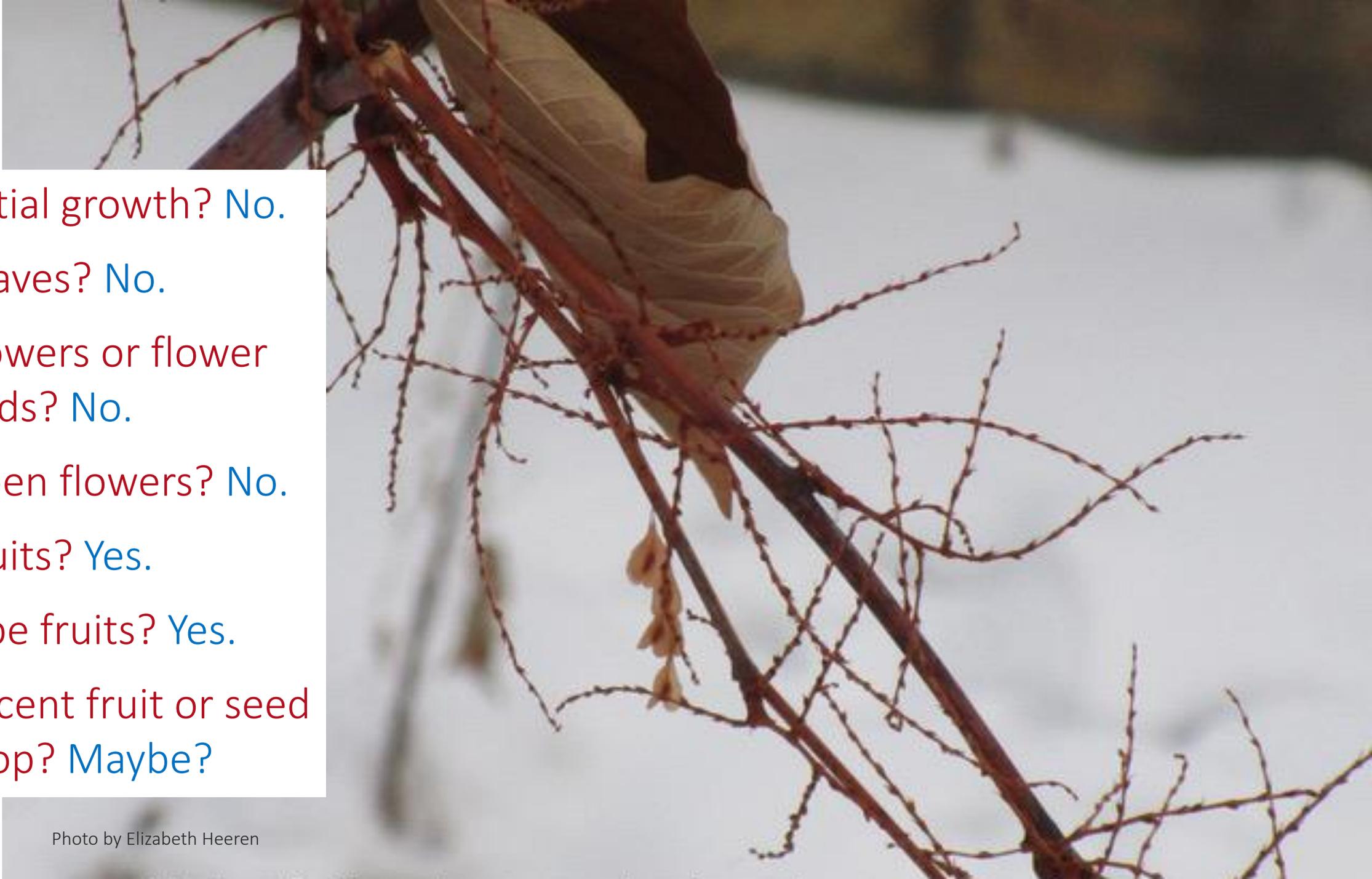
8



Photo by Elizabeth Heeren

8

1. Initial growth? No.
2. Leaves? No.
3. Flowers or flower buds? No.
4. Open flowers? No.
5. Fruits? Yes.
6. Ripe fruits? Yes.
7. Recent fruit or seed drop? Maybe?



Phenophase intensity



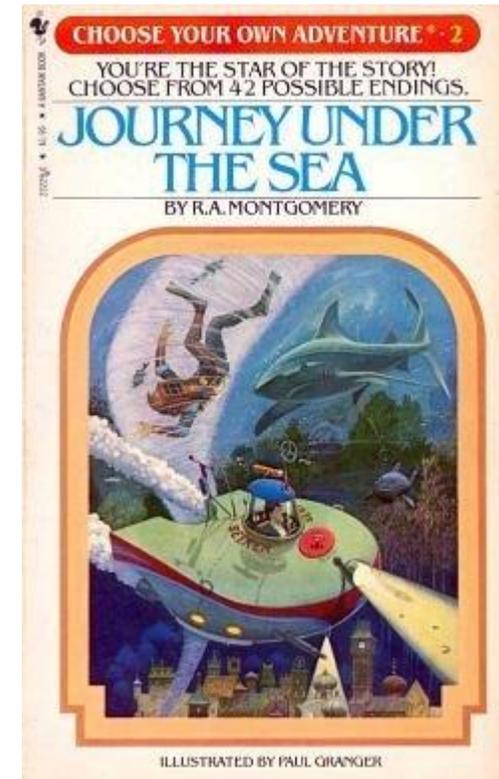
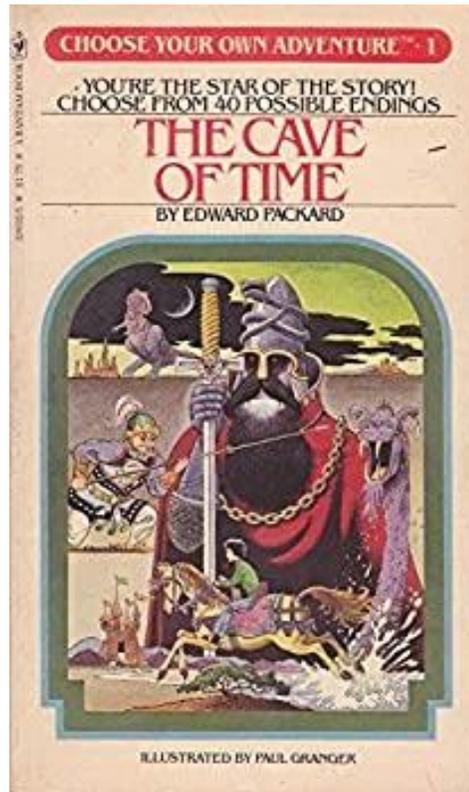


Phenophase Yes/No



Yes/No + intensity

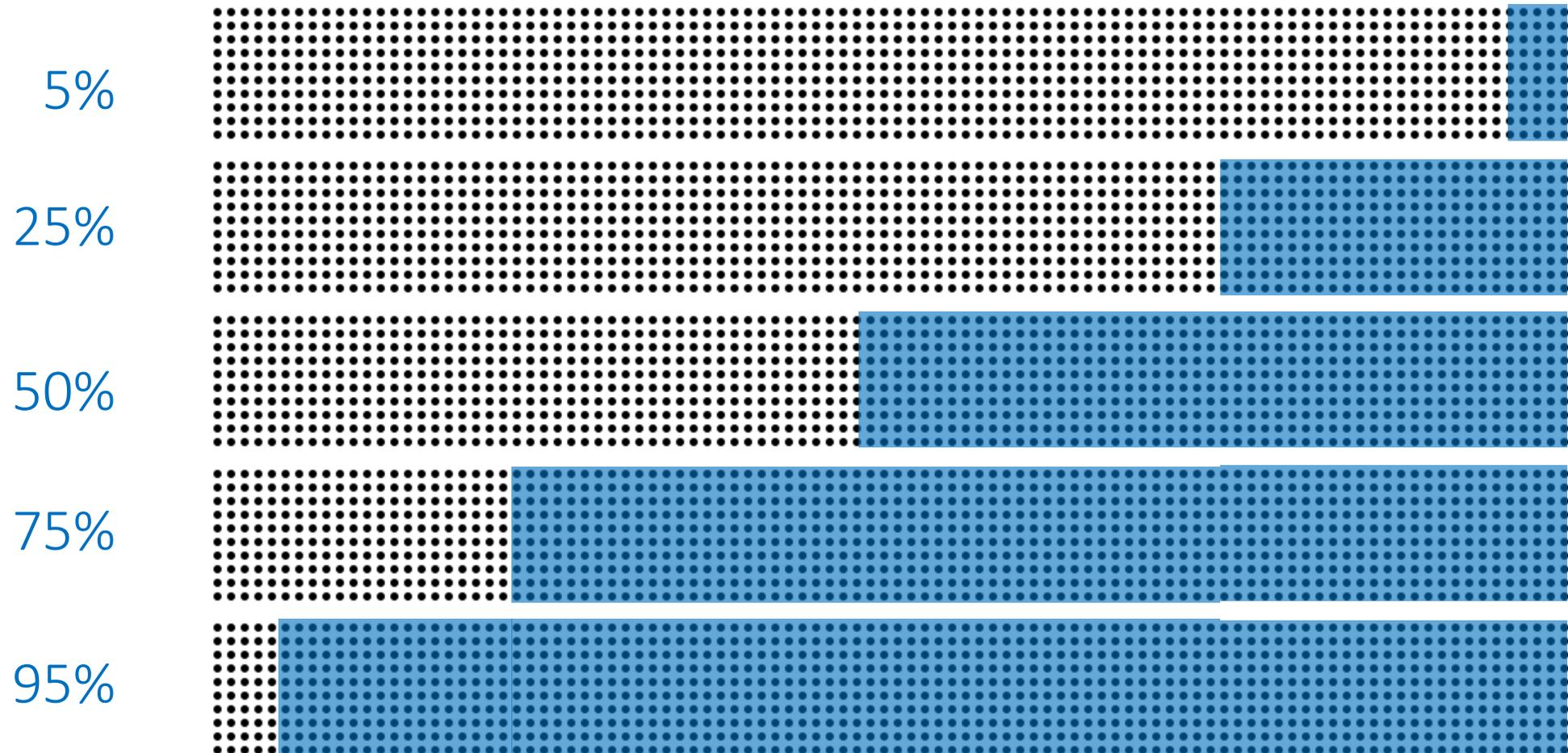
Choose your own adventure



Multiple choices let you ESTIMATE



Multiple choices let you ESTIMATE



**When you answer “yes” to
“3: Flowers or flower buds”...**

When you answer “yes” to “3: Flowers or flower buds”...

You get the *opportunity* to estimate how many flowers are present.

Less than 3

3–10

11–100

101–1,000

More than 1,000



estimate the number of flower heads

Less than 3

3–10

11–100

101–1,000

More than 1,000



**Inflorescence = the unit
to count**

**Every inflorescence is
associated with a leaf
because it grows from
the axil.**



“3 to 10”

Less than 3
3–10
11–100
101–1,000
More than 1,000



11 to
100





Less than 3

3–10

11–100

101–1,000

More than 1,000



Less than 3

3–10

11–100

101–1,000

More than 1,000

11 to

100

As long as a flower head has 1 or more individual flowers that have not yet wilted:

- Report "Yes" for "3: Flowers and flower buds."
- Report "Yes" for "4: Open flowers" (assuming it's open).
- Include this inflorescence when you estimate flower heads.

**When you answer “yes” to
“4: Open flowers”...**

When you answer “yes” to “4: Open flowers”...

You get the *opportunity* to
estimate what percent are open.

Less than 5%

5–24%

25–49%

50–74%

75–94%

95% or more



**Individual flowers = the unit
to assess**

$$\begin{array}{l} \# \text{ open} \\ \text{flowers} \end{array} \div \begin{array}{l} \bullet \\ \text{---} \\ \bullet \end{array} \begin{array}{l} \# \text{ all fresh} \\ \text{flowers} \end{array} = \begin{array}{l} \text{---} \\ \text{---} \end{array} \begin{array}{l} \% \text{ open} \\ \text{flowers} \end{array}$$

(flower buds plus unopened flowers plus open flowers)

A close-up photograph of a plant with large, vibrant green leaves and several upright, slender spikes of small, white, tubular flowers. The flowers are densely packed along the stems. The background is a soft-focus green, suggesting a natural outdoor setting.

**estimate
percentage of
open flowers**



Photo by W.carter via Wikimedia Commons, CC0

**Less than half.
Roughly a third.**




$$\sim 25 \div \sim 75 = \sim 33\%$$

open
flowers

all fresh
flowers

Less than 5%
5–24%
25–49%
50–74%
75–95%
More than 95%





Less than 5%

5–24%

25–49%

50–74%

75–95%

More than 95%

Less than 5%

5–24%

25–49%

50–74%

75–94%

95% or more

**estimate
the percentage
of open flowers**

Less than 5%

5–24%

25–49%

50–74%

75–94%

95% or more

25–49%

50–74% is also okay

estimate the percentage of open flowers

Less than 5%

5–24%

25–49%

50–74%

75–94%

95% or more



95% or more

Less than 5%

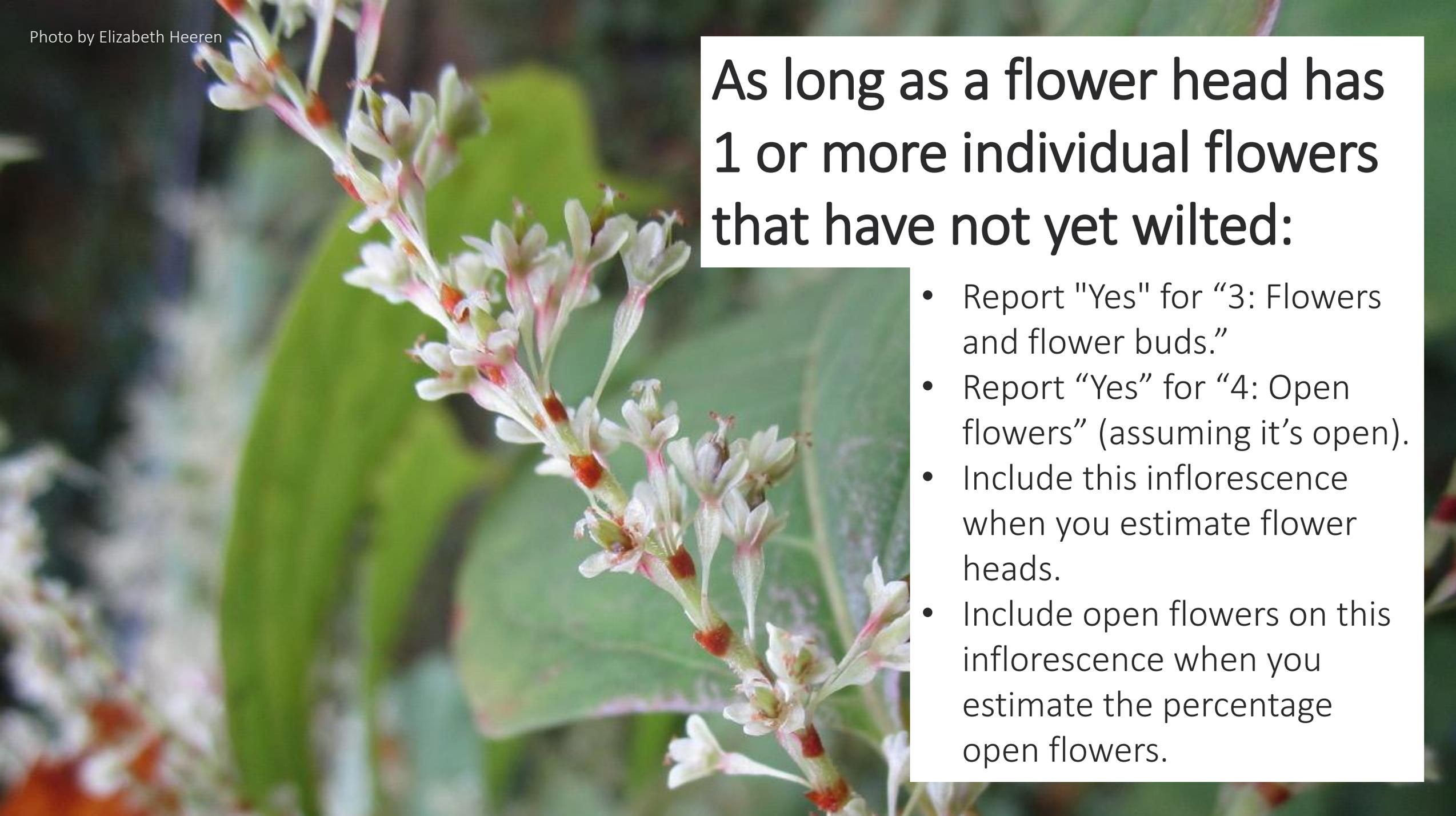
5–24%

25–49%

50–74%

75–94%

95% or more



As long as a flower head has
1 or more individual flowers
that have not yet wilted:

- Report "Yes" for "3: Flowers and flower buds."
- Report "Yes" for "4: Open flowers" (assuming it's open).
- Include this inflorescence when you estimate flower heads.
- Include open flowers on this inflorescence when you estimate the percentage open flowers.

5: Fruits

6: Ripe fruits

7: Recent fruit or seed drop

Intensity of fruit **phenophases**

When you answer “yes” to “5: Fruits”...

You get the *opportunity* to estimate how many fruits are present.

Less than 3

3–10

11–100

101–1,000

More than 1,000



estimate the number of fruits

- Less than 3
- 3–10
- 11–100
- 101–1,000
- More than 1,000



**More
than
1,000**

Less than 3

3–10

11–100

101–1,000

More than 1,000



Count part then estimate

Less than 3

3–10

11–100

101–1,000

More than 1,000

When you answer “yes” to “6: Ripe fruits”...

You get the *opportunity* to estimate what percentage of all fruits (unripe plus ripe) are ripe?

Less than 5%

5–24%

25–49%

50–74%

75–94%

95% or more



Individual fruits = the unit to estimate

ripe
fruits \div

all
fruits

(including non-ripe and ripe)

$\frac{\quad}{\quad}$ % ripe
fruits



estimate the percentage of ripe fruits

Less than 5%

5–24%

25–49%

50–74%

75–94%

95% or more



95% or more

Less than 5%

5–24%

25–49%

50–74%

75–94%

95% or more



Patch w/ unripe & ripe fruits

**No image
available**

estimate the percentage of ripe fruits

Less than 5%

5–24%

25–49%

50–74%

75–94%

When you answer “yes” to “7: Recent fruit or seed drop”...

You get the *opportunity* to estimate how many fruits have dropped since your last visit.

Less than 3

3–10

11–100

101–1,000

More than 1,000

**estimate
how many
ripe fruits
dropped
since last
visit**

Less than 3

3–10

11–100

101–1,000

More than 1,000



Photo by Elizabeth Heeren

Answer depends on what you saw last time

Less than 3

3–10

11–100

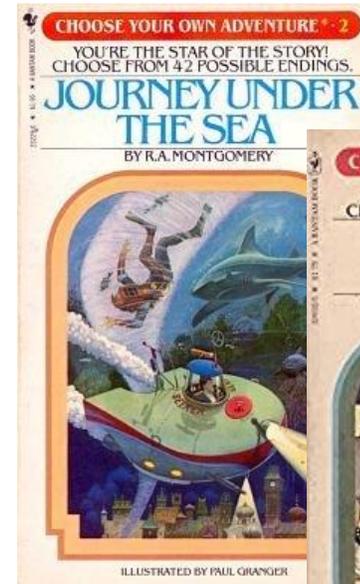
101–1,000

More than 1,000

Photo by Elizabeth Heeren



Phenophase intensity



**8 practice images:
Intensity questions
(Estimate counts & percentages)**

1

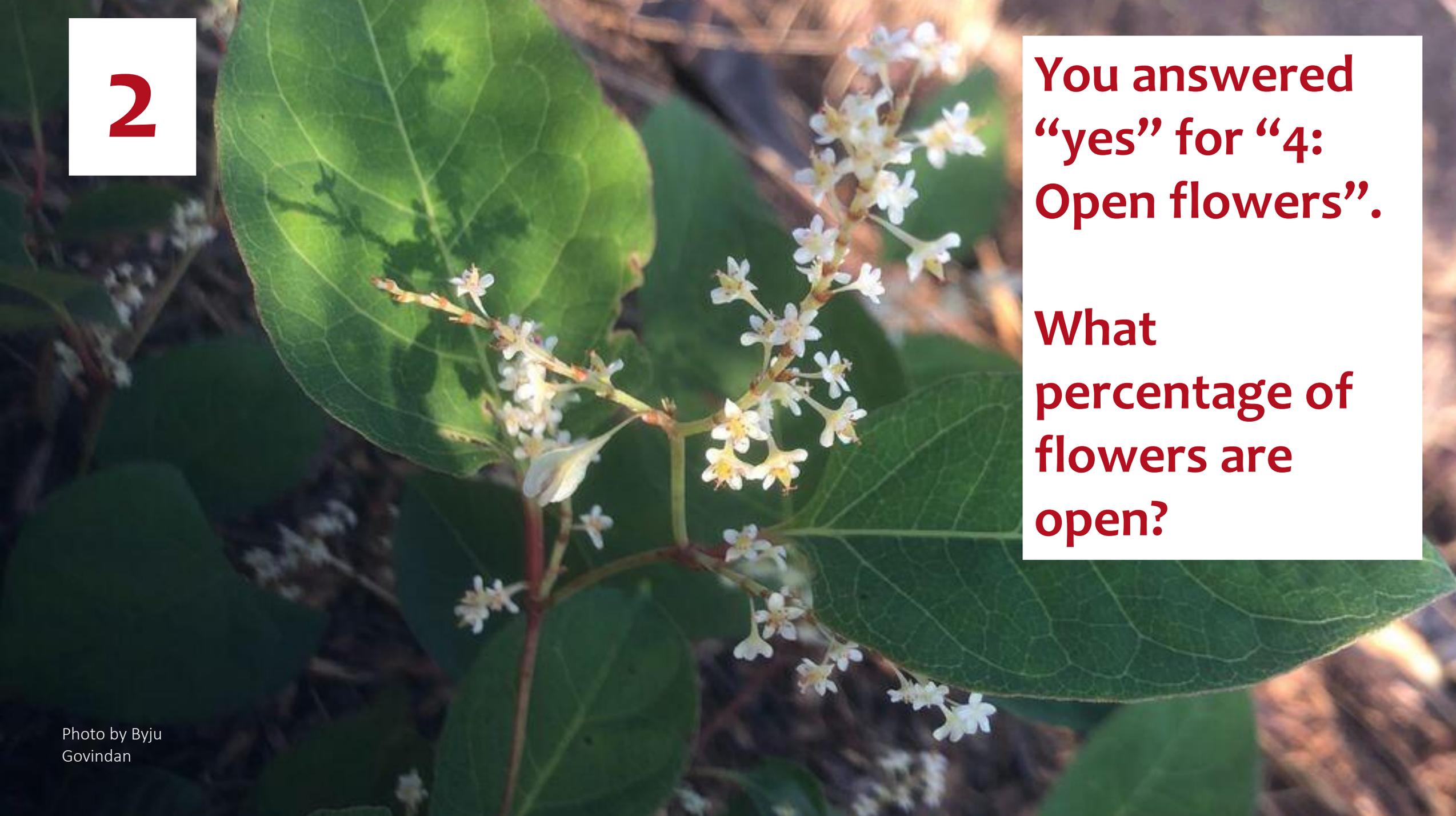
**You answered
“yes” for “3:
Flowers or
flower buds” . . .**

**How many
flowers?
(Estimate
flower heads.)**

1

**How many
flower heads?**

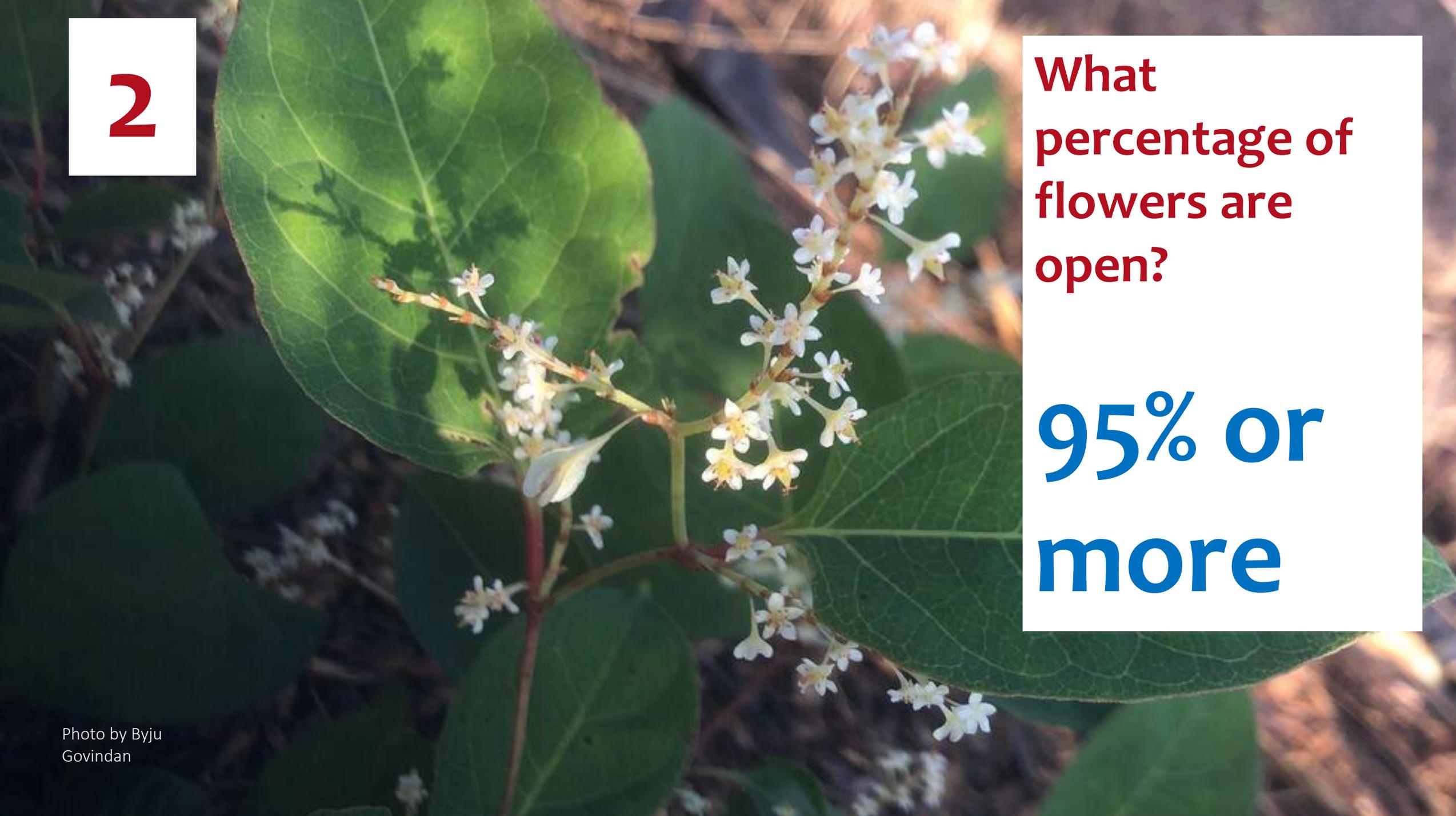
**3–10
(in photo)**



2

**You answered
“yes” for “4:
Open flowers”.**

**What
percentage of
flowers are
open?**



2

**What
percentage of
flowers are
open?**

**95% or
more**

3

**You answered
“yes” for “5:
Fruits” . . .**

**How many
fruits?**



3

**How many
fruits?**

**Less
than 3**
(? - check whole patch)

4

**You answered
“yes” for “3:
Flowers or
flower buds” . . .**

**How many
flowers?
(Estimate
flower heads.)**

4

**How many
flower heads?**

**11–100
(in photo)**

**Tip: It's easier to
estimate leaves
than flower heads.**





Photo by Elizabeth Heeren

5



**You answered “yes” for
“3: Flowers or flower
buds” . . .**

**How many flowers?
(Estimate flower heads.)**

5



How many flowers heads?

11–100

**Possibly 101–1,000 if
we could inspect
the whole patch**

6

You answered “yes” for
“5: Fruits” . . .

How many fruits?

6

How many fruits?

3 to 11
in the photo



7

**You answered
“yes” for “6:
Ripe fruits” . . .**

**What
percentage of
fruits are ripe?**



7

**What
percentage of
fruits are ripe?**

**95% or
more**

8

**You answered
“yes” for “3:
Flowers or
flower buds”.**

**How many?
(Estimate
flower heads.)**

8

As long as a flower head has 1 or more individual flowers that have not yet wilted:

Include inflorescences that have 1 or more individual flowers that have not yet wilted.

8

How many
flower heads?

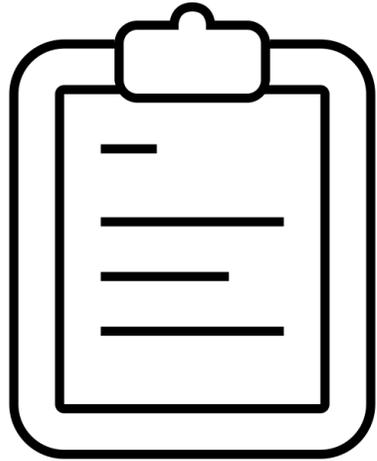
11 to

100

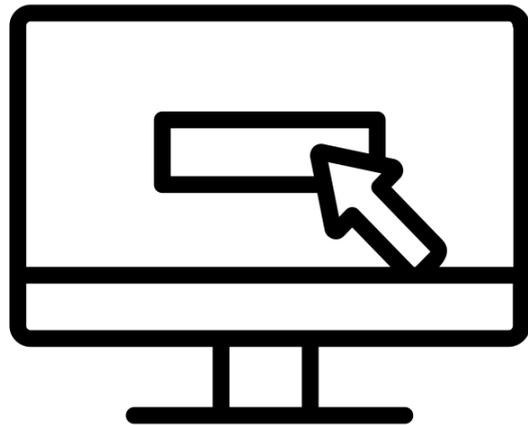
(in photo)

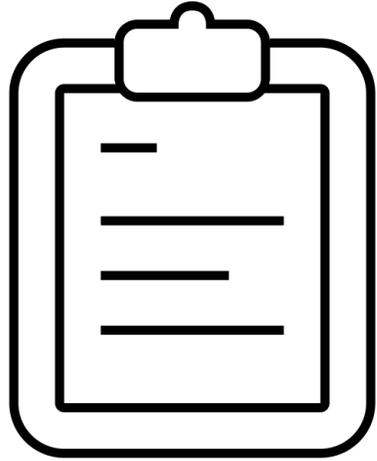


- Identification & marking
- Phenophases & phenophase intensity
- Data collection

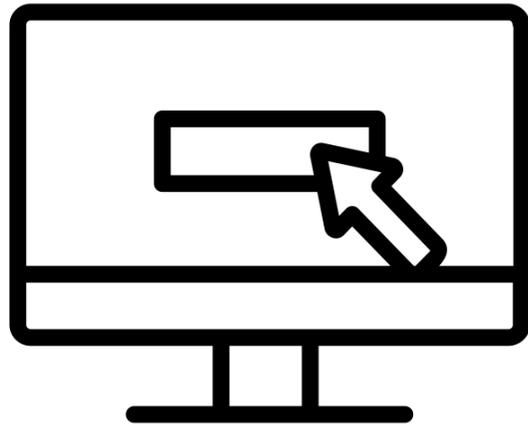
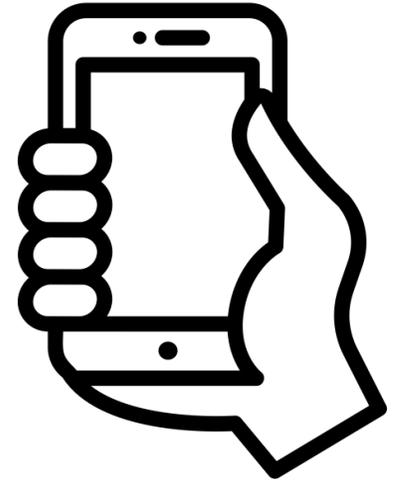


All data collection
uses *Nature's
Notebook*

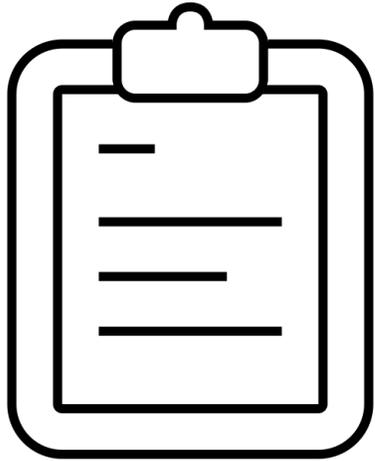




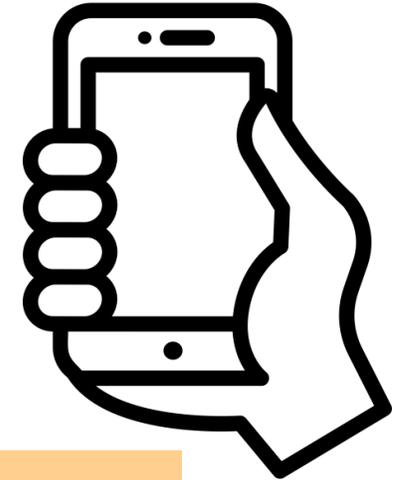
All data collection
uses *Nature's
Notebook*



This applies to Japanese
knotweed, var. *compacta*, and
Bohemian (hybrid) knotweeds.



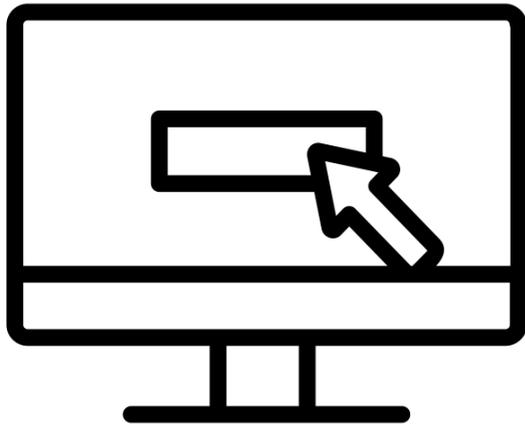
All data collection
uses *Nature's
Notebook*



Observation Deck: add patch.

Observation Deck: add comment
for “dwarf” knotweed plants.

Observation Deck: upload an image. (Or
you may use iNaturalist for images.)



Paper datasheets

Cover Sheet

Directions:
On this Cover Sheet, please report information to describe each visit to the site. On the Animal Checklist, please list the species of animals you are looking for at the site and record whether or not you saw or heard that species on each visit. On the Plant and Animal Phenophase Datasheets, please record the phenophases you observed on each visit for your individual plants and your animal species.

Below please fill in the date and time of your site visit in the first rows. Then, estimate your contribution of time to the project for that visit, separating the time it took you to travel to the site and the time you spent making observations on plants and animals once you arrived at the site. If you are observing animals, report the time you specifically spent searching for animals and circle the appropriate letter for your observation method. There is no need to report time for incidental sightings.

i - incidental, chance sighting while not specifically searching
 s - stationary standing or sitting at a single point
 w - walking a single pass or transect through your site
 a - area search; multiple passes through your site

If there is snow on the ground in the campy (treeline), please make a note of it in the third section and estimate the percent of the ground at your site that the snow is covering. After each visit, please enter the information from these datasheets online.

Site: _____
Year: _____
Observer: _____

Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
Report your contribution of time																
Time spent observing																
Time spent in travel																
Report your animal observation methods																
Time spent looking for animals																
Animal survey method																
Report on snow																
Is there snow on the ground?																
% of ground covered																
Is there snow in the canopy?																
Check when data entered online																
Comments:																

Taking the Pulse of Our Planet | npne
Contact: ncp@ucjeps.org | More information: www.ucjeps.org/how-observe

All data collection uses Nature's Notebook

Forbs

Directions: Fill in the date and time in the top rows and circle the appropriate letter in the column below.
 y (phenophase is occurring); n (phenophase is not occurring); ? (not certain if the phenophase is occurring).
 Do not circle anything if you did not check for the phenophase. In the adjacent blank, write in the appropriate measure of intensity or abundance for this phenophase.

Species: _____
Common Name: _____
Site: _____
Year: _____
Observer: _____

Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
Do you see...								
Initial growth								
Leaves								
Flowers or flower buds								
Open flowers								
Fruits								
Ripe fruits								
Recent fruit or seed drop								
Check when data entered online								
Comments:								

Plant Phenophase Datasheet | Taking the Pulse of Our Planet | npne
Contact: ncp@ucjeps.org | More information: www.ucjeps.org/how-observe

Mobile app

Boost 11:36 AM 84%

Sites Plants & Animals **Observe** Review

Plants Animals Site-Visit Details

Observation Date 2020-12-2 : 11:36

Japanese knotweed Nic Isle

Mark All Phenophases As No

Initial growth Y N ?

Leaves Y N ?

Flowers or flower buds Y N ?

Open flowers Y N ?

Fruits Y N ?

Ripe fruits Y N ?

Recent fruit or seed drop Y N ?

Comments enter comments

Save Data Next Plant

Cover Sheet

Directions: On this Cover Sheet, please report information to describe each visit to the site. On the Animal Checklist, please list the species of animals you are looking for at the site and record whether or not you saw or heard that species on each visit. On the Plant and Animal Phenophase Datasheets, please record the phenophases you observed on each visit for your individual plants and your animal species.

Below please fill in the date and time of your site visit in the first rows. Then, estimate your contribution of time to the project for that visit, separating the time it took you to travel to the site and the time you spent making observations on plants and animals once you arrived at the site. If you are observing animals, report the time you specifically spent searching for animals and circle the appropriate letter for your observation method. There is no need to report time for incidental sightings.

Legend:
 i - incidental, chance sighting while not specifically searching
 s - stationary standing or sitting at a single point
 w - walking a single pass or transect through your site
 a - area search, multiple passes through your site

If there is snow on the ground in the camp(s) (check), please make a note of it in the third section and estimate the percent of the ground at your site that the snow is covering. After each visit, please enter the information from these datasheets online.

Site: _____
 Year: _____
 Observer: _____

Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
Report your contribution of time															
Time spent observing															
Time spent in travel															
Report your animal observation methods															
Time spent looking for animals															
Animal survey method															
Report on snow															
Is there snow on the ground?															
% of ground covered															
Is there snow in the canopy?															
Check when data entered online															
Comments:															

About your visit

- date & time spent
- which site you visited
- which plant you observed
- conditions, comments, etc.

Forbs

Directions: Fill in the date and time in the top row and circle the appropriate letter in the column below.
 y (phenophase is occurring); n (phenophase is not occurring); ? (not certain if the phenophase is occurring).
 Do not circle anything if you did not check for the phenophase. In the adjacent blank, write in the appropriate measure of intensity or abundance for this phenophase.

Species: _____
 Common Name: _____
 Site: _____
 Year: _____
 Observer: _____

Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:	Date:
Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:
Do you see...								
Initial growth								
Leaves								
Flowers or flower buds								
Open flowers								
Fruits								
Ripe fruits								
Recent fruit or seed drop								
Check when data entered online								
Comments:								

7 phenophases for selected plant

Boost 11:36 AM 84%

Sites Plants & Animals **Observe** Review

Plants Animals Site-Visit Details

Observation Date 2020-12-2 : 11:36

Japanese knotweed Nic Isle

Mark All Phenophases As No

Initial growth Y N ? ⓘ

Leaves Y N ? ⓘ

Flowers or flower buds Y N ? ⓘ

Open flowers Y N ? ⓘ

Fruits Y N ? ⓘ

Ripe fruits Y N ? ⓘ

Recent fruit or seed drop Y N ? ⓘ

Comments enter comments

Save Data Next Plant

Initial growth	<input type="radio"/> Y <input type="radio"/> N <input type="radio"/>	<input type="button" value="i"/>
Leaves	<input type="radio"/> Y <input type="radio"/> N <input type="radio"/>	<input type="button" value="i"/>
Flowers or flower buds	<input type="radio"/> Y <input type="radio"/> N <input type="radio"/>	<input type="button" value="i"/>
Open flowers	<input type="radio"/> Y <input type="radio"/> N <input type="radio"/>	<input type="button" value="i"/>
Fruits	<input type="radio"/> Y <input type="radio"/> N <input type="radio"/>	<input type="button" value="i"/>
Ripe fruits	<input type="radio"/> Y <input type="radio"/> N <input type="radio"/>	<input type="button" value="i"/>
Recent fruit or seed drop	<input type="radio"/> Y <input type="radio"/> N <input type="radio"/>	<input type="button" value="i"/>
Comments	<input type="text" value="enter comments"/>	

“i” = “info”
phenophase
definitions

Mobile app

The screenshot shows a mobile application interface for data collection. At the top, there's a status bar with 'Boost' signal, '11:36 AM' time, and '84%' battery. Below that, a navigation bar has 'Sites', 'Plants & Animals', 'Observe' (highlighted), and 'Review'. A secondary bar has three tabs: 'Plants' (highlighted), 'Animals', and 'Site-Visit Details'. The main content area includes: 'Observation Date' set to '2020-12-2 : 11:36'; a dropdown menu for 'Japanese knotweed Nic Isle'; a button 'Mark All Phenophases As No'; and several rows of phenophase data, each with 'Y', 'N', and '?' buttons and an information icon. The rows are: 'Initial growth', 'Leaves', 'Flowers or flower buds', 'Open flowers', 'Fruits', 'Ripe fruits', and 'Recent fruit or seed drop'. At the bottom, there's a 'Comments' field with the placeholder 'enter comments' and two buttons: 'Save Data' and 'Next Plant'.

Sync your device when on Wi-Fi.

If you need to *edit* data, use
Observation Deck.



Don't feel stressed, just do your best:

- Check resources on *Nature's Notebook*.
- Skip intensity questions if you are not confident. These skills take time. Estimate, don't count!
- Unsure? Use paper datasheets. Take notes. Take photos.
- *Trust yourself.* Your acquired knowledge about your plant is your best tool.
- *Do your best.*

For more info & tips about different kinds of knotweed, see the “About knotweeds” section of the FAQ page

peskyplants.umn.edu/faq



Pesky Plants Training

Session 3 (Japanese knotweed) April 5/7, 2021

*Ask for help
any time:
peskyplants@umn.edu*

Abbie Anderson

Rebecca Montgomery, Byju Govindan, Stephan Carlson
University of Minnesota, Department of Forest Resources

