

# Help using our Lucid interactive keys

The interactive Lucid keys developed by the Plant systematics staff at Landcare Research and our co-authors are powerful and simple to use plant identification tools.

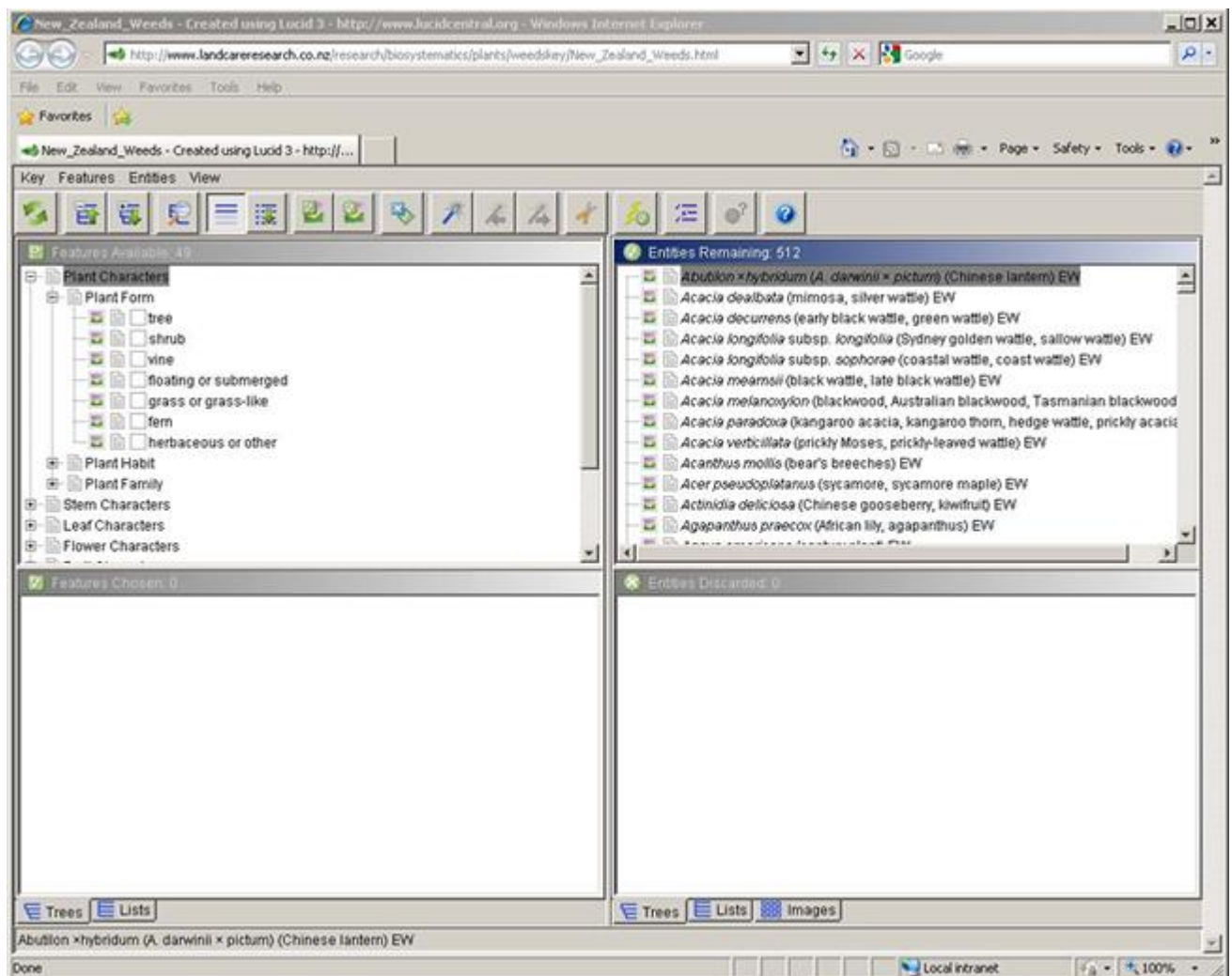
Most people can run them with little difficulty but this page contains help for those needing assistance.

## How to use our Lucid keys

Once the basics are understood, Lucid keys are very easy and fun to use.



### General layout

Lucid keys have an intuitive interface divided into four panes. The left-hand panes are features (characters and character states used in the key) and the right-hand panes are the entities (all taxa included in the key such as species and subspecies).



Once the key is fully loaded, the top left-hand pane displays a complete list of 'Features Available' and the top right-hand pane shows all the entities in the key. Features in particular are organised in a file directory structure that you can open and close individually (or all at once).

As you start using the key, the character states that you choose (by ticking score boxes in the top left-hand directory) appear in the 'Features Chosen' (bottom left) pane and the taxa that lack these features appear in the 'Entities Discarded' (bottom right) pane. The heading of the pane that you are in is highlighted in blue and all four panes are resizable.












Thumbnail  and web page  media icons on the left-hand side illustrate and describe features; those on the right-hand side illustrate the entities and link to related web pages. **Use single mouse clicks, not double!** The online keys run through your web browser, which is always single click of your mouse.

# Button Bar

The Lucid button bar, located above the four panes and below the menu, looks like this:



## Some of the most commonly used buttons are:

Button	Name	What it does
	Restart Key	Starts the key from the beginning. Used if you wish to identify a new entity using the same key or if it is quicker to start again on the specimen that you have been trying to identify.
	Collapse selected list	Collapses the list of entities or features, depending on which quadrant (pane) of the key you are in.
	Expand selected list	Expands the list of entities or features, depending on which quadrant (pane) of the key you are in.
	Find feature/entity...	Opens a search box that you can type in to find a feature or entity (depending on what side of the key you are on). Especially useful for large keys.
	Feature Thumbnails	Displays or hides all of the feature thumbnails. Provides a visual method for identifying plants but restricts your view of the feature list.
	Entity Thumbnails	Displays or hides the first thumbnail for an entity.
	Subsets	Most of our keys have groups of features available. This button will give you options to choose restricted sets of features – e.g., characters that only apply to non-flowering plant material, and expert, novice, and non-identification data subsets.
	Best	Highlights the feature that will provide the most discriminating identification based on the entities remaining. ‘Best’ is useful when you have only a few similar taxa remaining.
	Previous Best	Allows you to navigate back through your ‘Best’ choices once you have used ‘Next Best’.
	Next Best	Takes you to the next best feature(s).
	Help	This button accesses the extensive help files preloaded within each key by the Lucid software developers.

# Character misinterpretation

Lucid keys are fault-tolerant – they can forgive commonly made mistakes over features that are often misinterpreted.

For example, the flower of an arum lily (*Zantedeschia aethiopica*) is not the white structure arrowed (Fig 1). In fact, the arrow points to a white petal-like bract (called a spathe) and numerous flowers are separated by gender along the yellow elongated flower spike (the inflorescence) (Fig 2).



Figure 1. The arrow points to a white petal-like bract called a spathe. Image - Trevor James

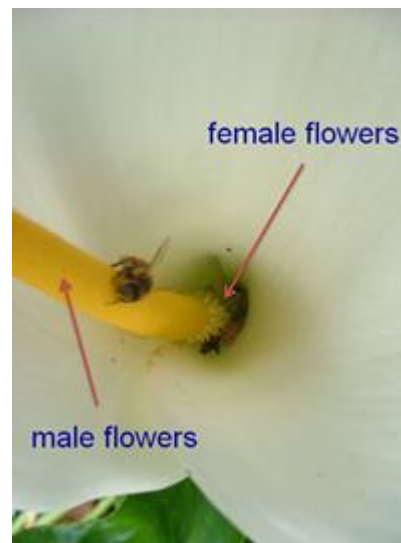


Figure 2. Flowers are separated by gender along the inflorescence. Image - Trevor James

If you made this common misinterpretation in the [Weeds Key](#), and as a result incorrectly scored 'Flower Type', 'Flower Structure', 'Flower Size', or 'Inflorescence Type', arum lily would not be discarded in the identification process.

## Lucid™ software

Lucid3 (Lucid Version 3) is software for creating and using interactive identification keys.

Lucid is developed by [QAAFI Biological Information Technology Group \(QBIT\)](#), formerly The Centre for Biological Information Technology (CBIT) at The University of Queensland, Australia.

Visit the [Lucidcentral website](#) for more information on the Lucid family of software.

# Making identifications

Say for example that you had a sample of gorse (*Ulex europaeus*) that you wanted to identify using the [Weeds Key](#) (it's a good idea to try our keys first on plants you know).

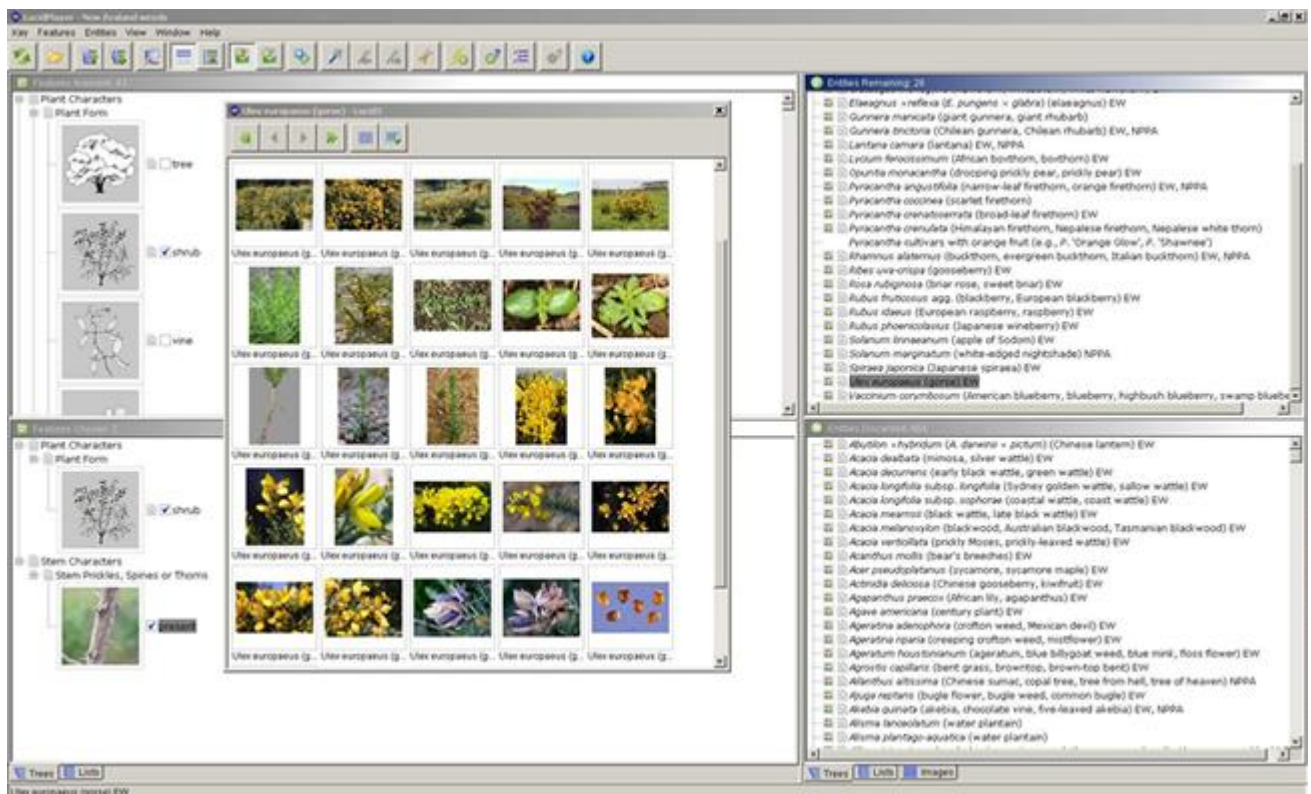
Based on the features you can see on the sample in front of you, you can select from 216 character states (grouped into 48 characters) scored for the more than 500 entities in this key. For gorse, the character state for 'Plant Form' is 'Shrub' and the character state for 'Stem Prickles' is 'Present'.

Scoring these two character states (by ticking the score boxes) takes you down to 28 'Entities Remaining'. If your sample was in flower, you could choose 'Flower Colour' as 'Yellow' (with 11 entities remaining) or 'Flower Type' as 'Pea-flower shaped' which gives you the correct identification.

You are not limited to these features or this order of entering them. Lucid keys are multi-access so you can select features anywhere within the key.

To deselect any character state that you have chosen, click on its score box to un-tick it.

At any stage of the identification process, you can view images for each entity in a separate (pop-up) window (see inset below):



# Troubleshooting

Reasons why you may not be able to run our interactive keys:

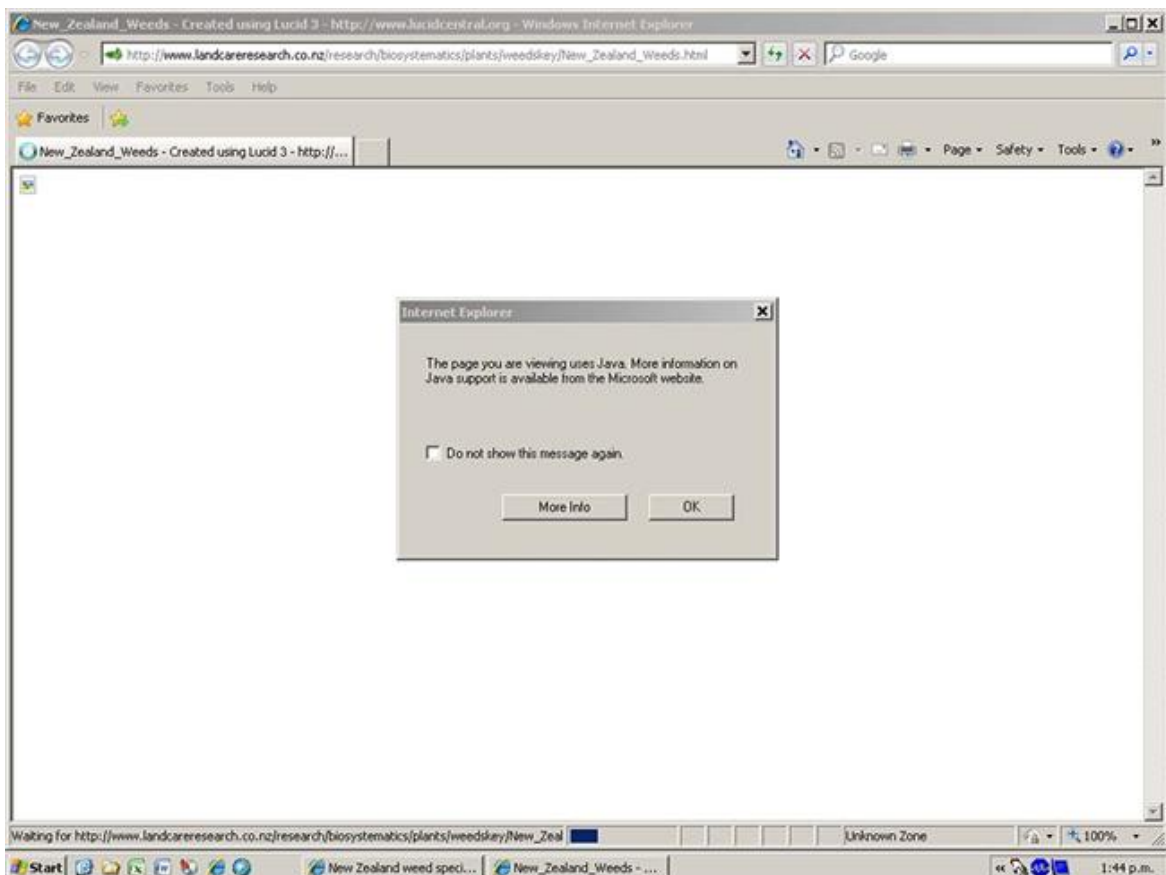
- [You don't have Java installed](#)
- [Your internet connection is slow](#)
- [Internet Explorer is blocking active content](#)
- [Pop-up blockers](#)
- [The key doesn't load properly](#)
- [Checklist](#)

## You don't have Java installed

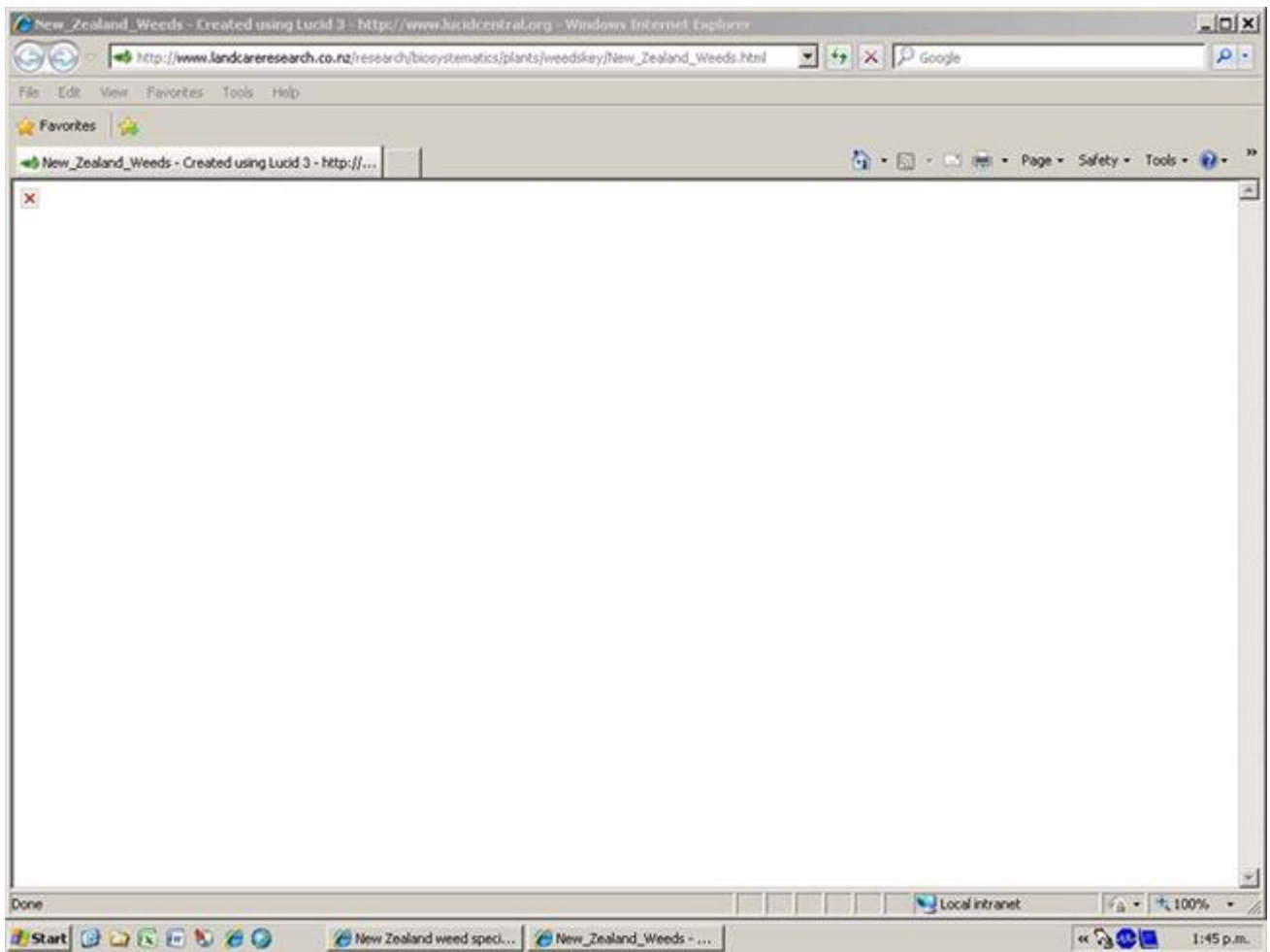
Your computer must have Java Virtual Machine (JVM) installed for our keys to run. JVM is also referred to as Java Runtime Environment (JRE) or Java for short. **This is the most common problem for first-time users.**

Our Lucid keys run on modern Java-enabled web browsers, e.g., Internet Explorer (IE5 and above), Firefox (3 and above), Opera (4 and above), Safari (XX and above) and Google Chrome. They will run under Windows 2000/XP/Vista, Macintosh OS X, Linux and Solaris operating systems. The purpose of JVM is to extend the capability of the web browser. Our Lucid keys use Java applets, small self-contained programs that operate within the browser.

If Java is not installed, the key will not load and your screen may look like this:



Or this:



Java is widely-used and usually easy to install. To check if Java is installed on your computer and to update it, go to:

- [www.java.com/en/download/installed.jsp](http://www.java.com/en/download/installed.jsp) for PC's; or
- the Software Update feature [http://support.apple.com/kb/HT1338?viewlocale=en\\_US](http://support.apple.com/kb/HT1338?viewlocale=en_US) for updating Java when using the standard Safari browser on Macintosh's. For other browsers on Mac OS X, see the Java Embedding Plugin <http://javaplugin.sourceforge.net/>.

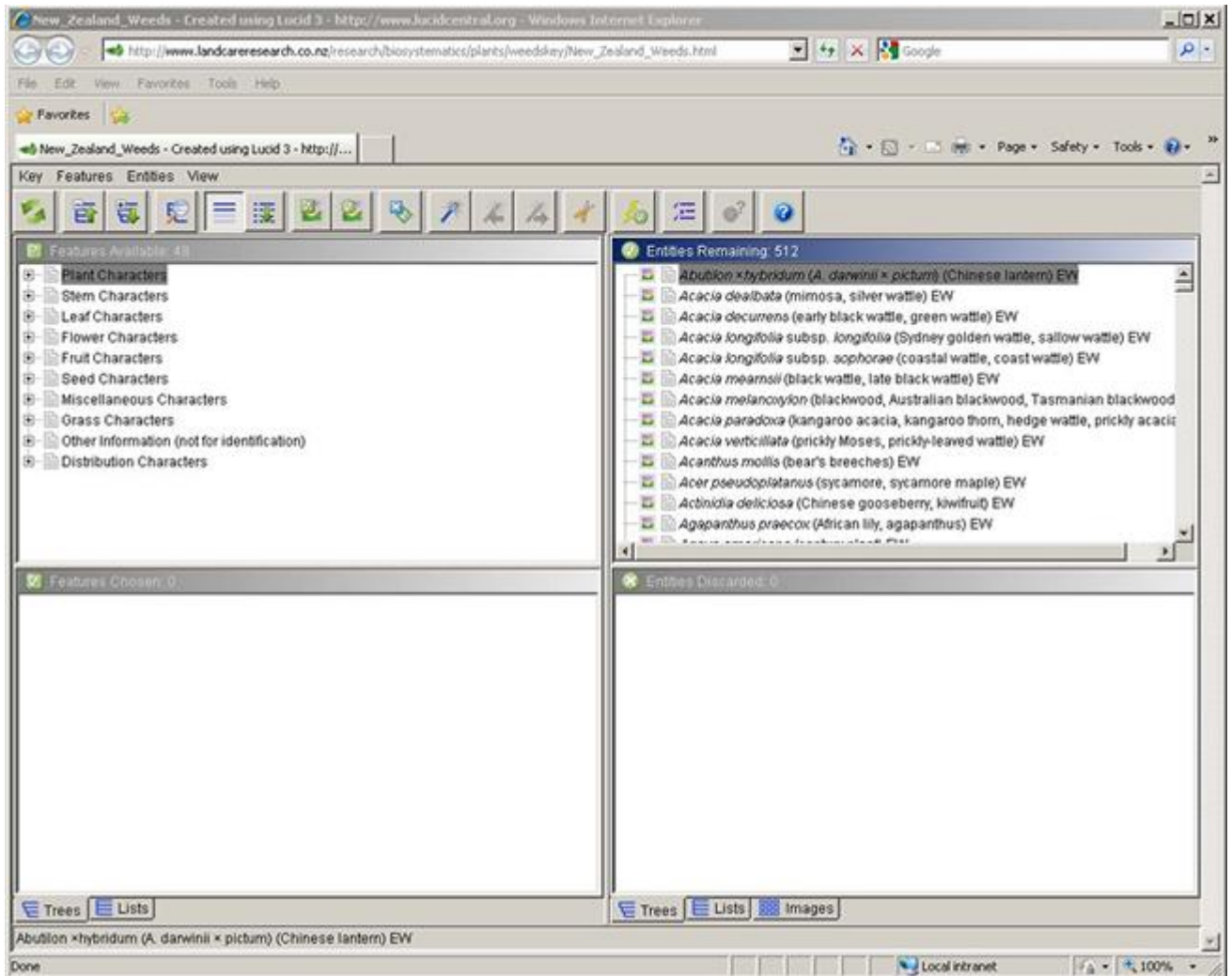
Some workplaces have restrictions on installing software so you may need to see your IT department for permission and help with installing Java.

### **Your internet connection is slow**

A broadband connection is recommended as dial-up internet will be too slow to operate the key satisfactorily.

### **Be patient on start-up!**

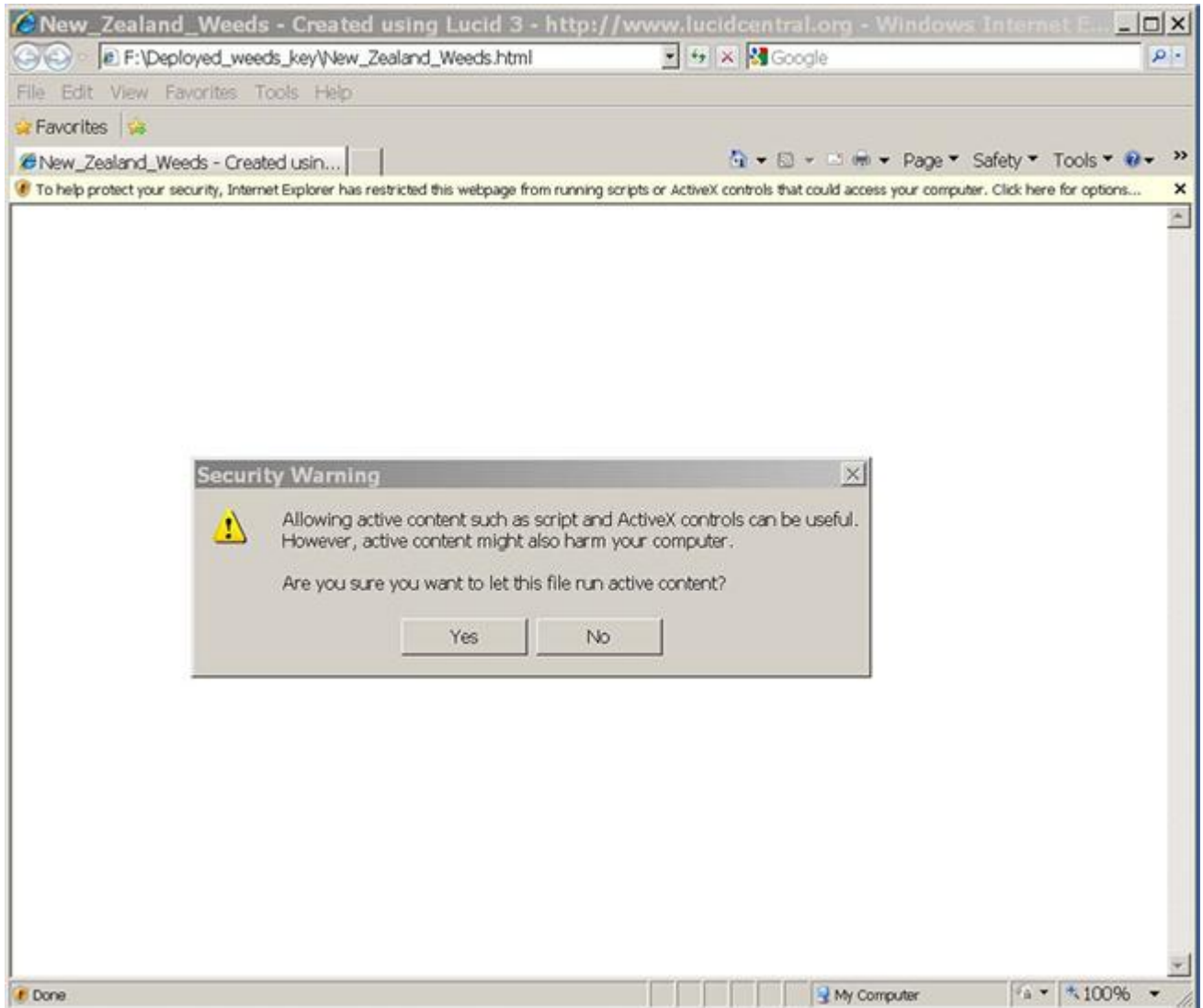
With an average broadband connection, allow up to 45 seconds for the key to load. The key will start to open with an empty screen with the word 'Done' at lower left. Then a small window will appear saying 'Opening Key', followed by the four panes of the Lucid key. A correctly loaded key looks like this:



## Internet Explorer is blocking active content

If you are using Internet Explorer (IE), you may need to allow active content. Internet Explorer, by default, blocks active content like Java applets. The screen looks like this:





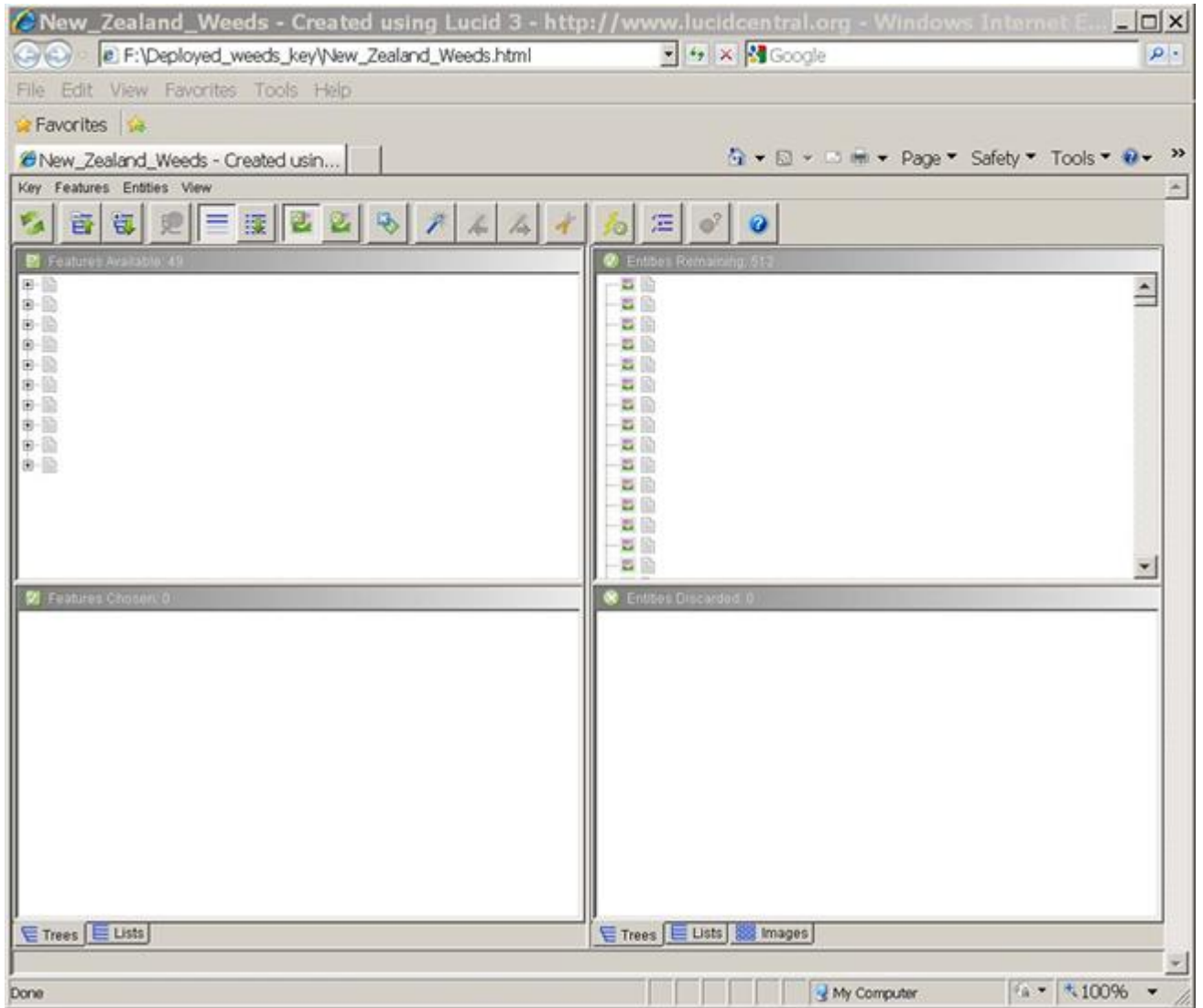
Once you have agreed to allow the Lucid key to run, IE should remember this and not give you this message when you next open the same key.

## **Pop-up blockers**

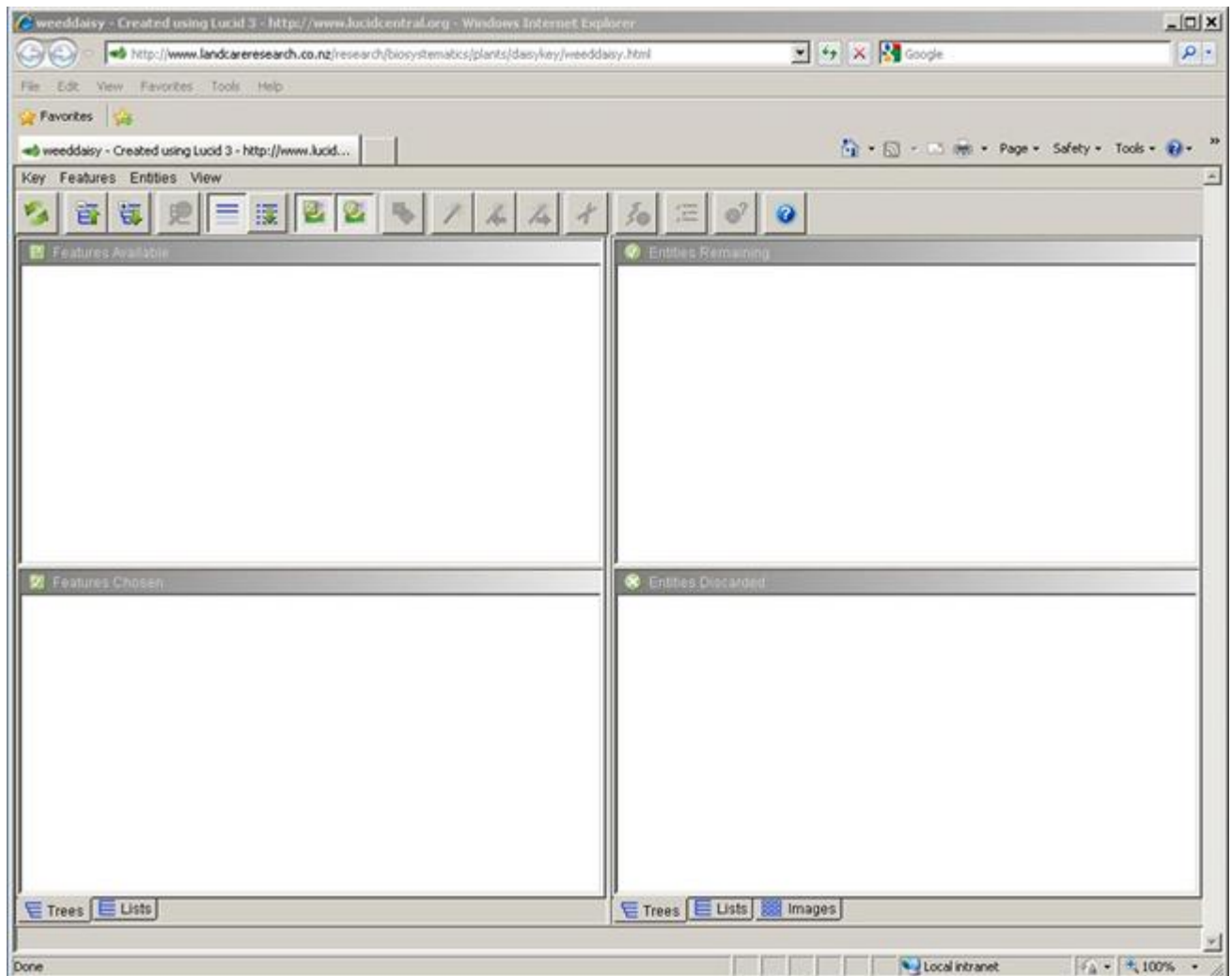
IE and other browsers may have pop-up blockers which can prevent the interactive content of our keys working (such as images opening in a new window). You may need to set your pop-up blocker to allow this content to display.

## **The key doesn't load properly**

Sometimes the key may be only partly visible. For instance, the feature names and taxon names may be invisible and you will see this:



Or there may be nothing within the four panes:



The best solution to this kind of display problem is to try restarting the key using the button bar or, if that fails, close your browser, open it again and reload the key.

## Checklist

If a key is not operating for you, check the following:

1. Test the version of Java you are using. Note that JVM 1.6.11 (Version 6, Update 11) contains a bug that affects the Lucid Applet Player, and you will need to upgrade to a newer version to avoid this issue.
2. Are other Landcare Research Lucid keys ([Coprosma Key](#), [NZGrass Key](#), [School Key](#), [Weeds Key](#)) working for you? If only one is not working, please notify us through the email contact address provided on the home page of each key.
3. Are non-Landcare Research online Lucid keys working for you? Test these Java-driven examples: [Neotropikey](#), or the [Key to cultivated pines](#). If they are working but our Landcare Research keys are not, the problem may lie with our servers. Please notify us.
4. Are any of these keys working for you? If not, test this key server example: [Australian Tropical Rainforest Orchids](#). If this works and nothing else above runs, then you have an issue with Java.

5. Does your workplace block you installing programs such as Java on your computer? Are you able to run Lucid keys from your home computer? If yes, you'll have to negotiate with your IT department for work access.