









# Version Control with Git

Oregon Data Science Collaborative

Spring 2022



# What is version control?

<input type="checkbox"/>	Name	Date modified	Type
	Rscript_4_21_2016.R	5/1/2016 3:03 PM	R File
	Rscript_4_22_2016a.R	5/1/2016 3:03 PM	R File
	Rscript_4_22_2016b.R	5/1/2016 3:03 PM	R File
	Rscript_4_24_2016.R	5/1/2016 3:03 PM	R File
	Rscript_final.R	5/1/2016 3:03 PM	R File
	Rscript_final_final.R	5/1/2016 3:03 PM	R File
	Rscript_really_final.R	5/1/2016 3:03 PM	R File
	Rscript_really_really_final_final.R	5/1/2016 3:03 PM	R File

- Version control is an organized way of maintaining a record of changes
- Git is a system for distributed version control – not the only one, but popular among scientists
- Enhance reproducibility
- Fix mistakes by reverting to earlier versions
- Improve project structure
- Backup versions in remote repositories\*\*
- Facilitate collaboration\*\*

# The mechanics of version control

Single user:



Multiple users:



# Some Git vocabulary

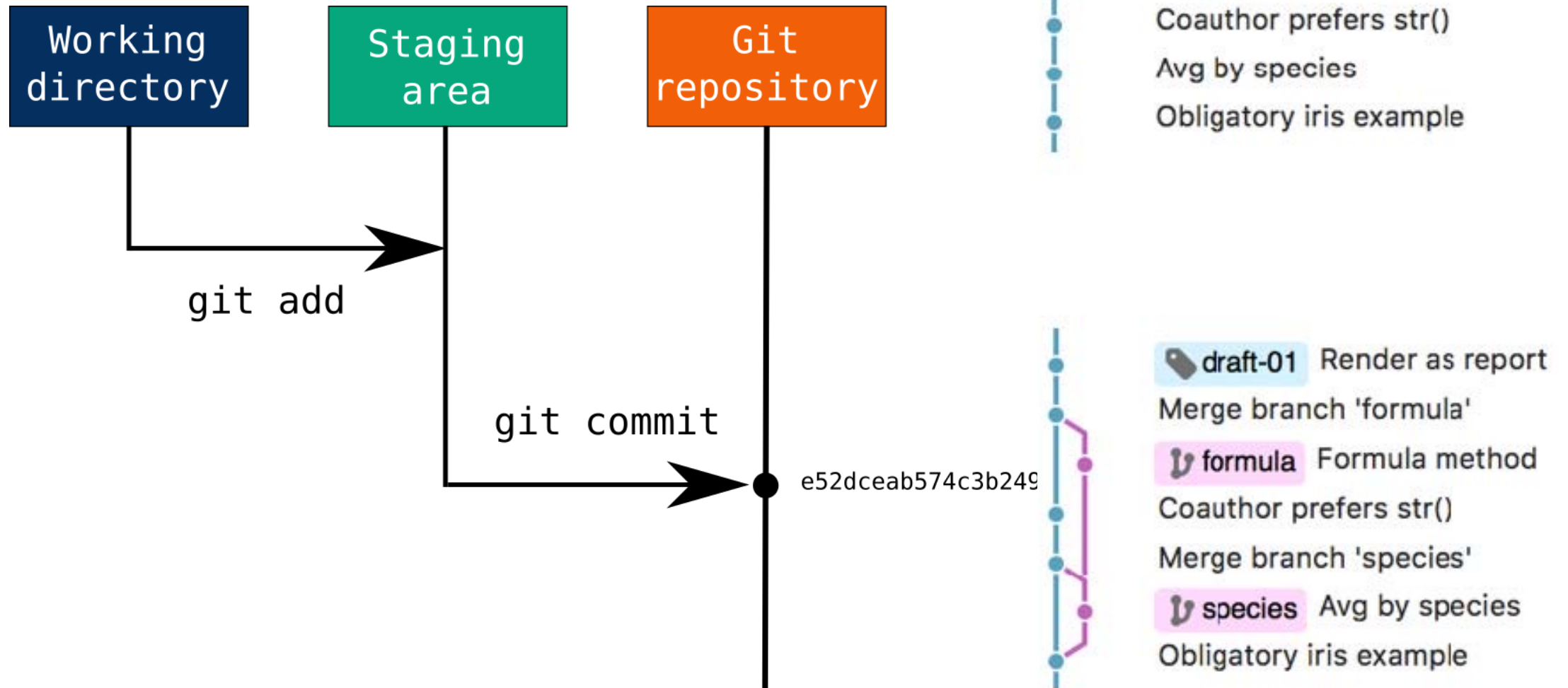
**Repository/repo** – the collection of files and directories associated with a project and tracked with version control

**Commit** – a snapshot of a repository's history that is recorded by Git

**Diff** – Changes in the repository's content associated with the commit

**Branches** – Concurrent work (changes to file content) can occur in parallel branches, so that you can focus on developing one aspect of the repository/project independently

# The basic Git workflow



# Use commits to anchor your code



- if you make a mistake, you can't fall past the previous commit.
- Use more commits when you're in uncertain or dangerous territory.
- Commits are also helpful to others, because they show your journey, not just the destination.

[Hadley Wickham, R Packages](#)

# Command line vs. Git client

Current Repository  
misc-analysis

Current Branch  
master

Pull origin  
Last fetched 7 minutes ago 3 ↓

Changes 3

History

No Branches to Compare

Add 2021 qPCR and eDNA outcomes  
lillian-aoki • Dec 8, 2021

Add eDNA figure  
Lillian Aoki • Dec 8, 2021

updates to leaf 2 leaf 3 figure  
Lillian Aoki • Sep 15, 2021

updated Leaf 2/Leaf 3 figure to sho...  
Lillian Aoki • Feb 26, 2021

other slight adjsutment to figure  
Lillian Aoki • Feb 3, 2021

Adjusted leaf comparison figure  
Lillian Aoki • Feb 3, 2021

Adjusted leaf comparison figure  
Lillian Aoki • Feb 3, 2021

Oregon Leaf 2 vs Leaf 3 analysis  
Lillian Aoki • Oct 6, 2020

modified plots of cell counts  
Lillian Aoki • Aug 28, 2020

Updated analysis of the qPCR resul...  
Lillian Aoki • Aug 27, 2020

updates to leaf 2 leaf 3 figure

Lillian Aoki 1705af6 2 changed files +1 -1

oregon-leaf2/Leaf2\_Analysis.Rmd

oregon-leaf2/Leaf2\_Ana.../data-2.png

@@ -59,7 +59,7 @@ ggplot(leaf[leaf\$Leaf==2|leaf\$Leaf==3,],aes(x=Leaf,fill=WD))+geom\_bar(position =

59 59

60 60

61 61

62 62

63 63

64 64

65 65

scale\_y\_continuous(expand = c(0,0),limits=c(0,62))+

theme\_bw(base\_size = 11)+

scale\_fill\_manual(values=c("darkgreen","grey50"),labels=c("Healthy","Diseased"))+

- xlab("Leaf rank")+

+ xlab("Blade rank")+

ylab("Count of plants")+

theme(legend.title = element\_blank(),

panel.grid = element\_blank(),