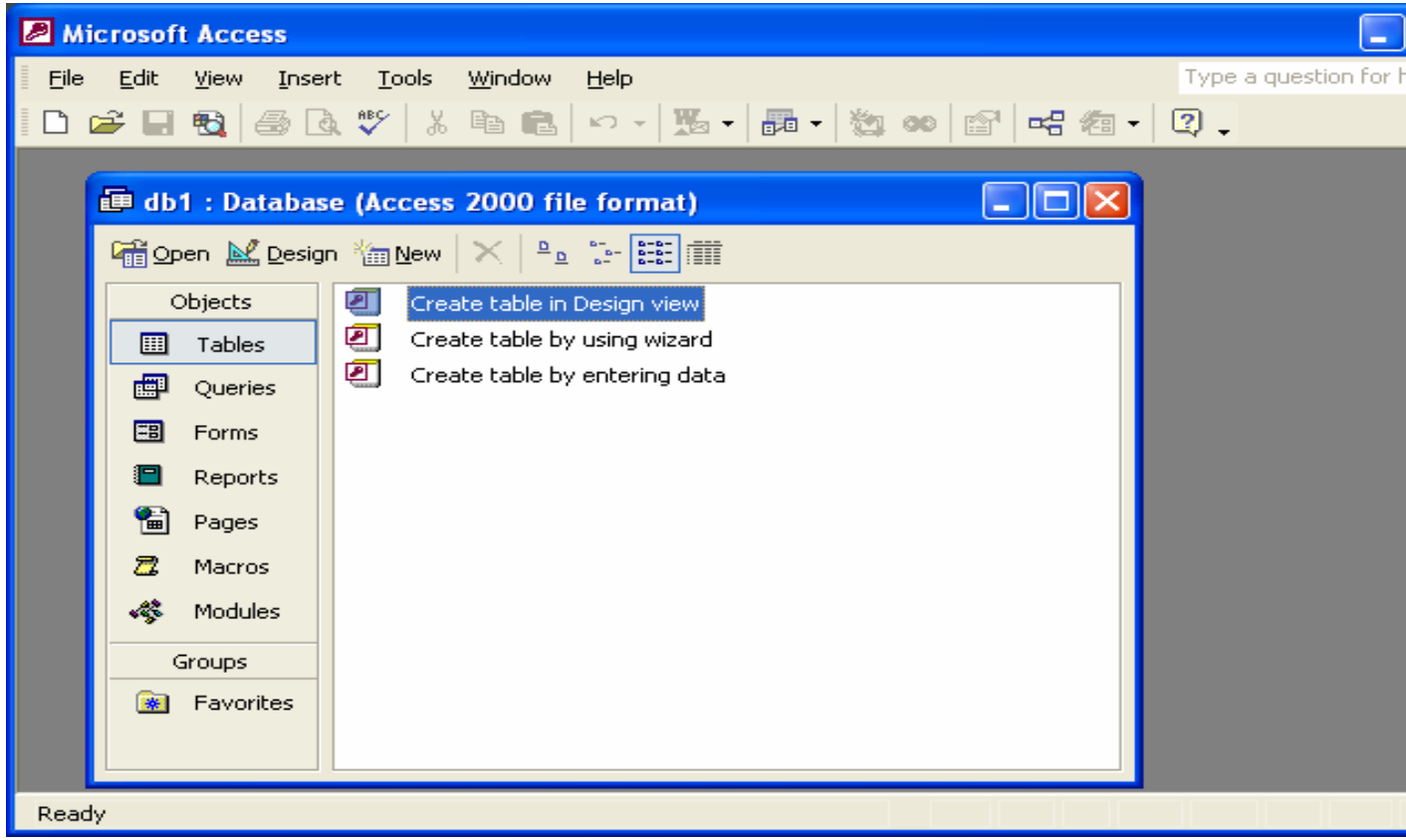
Implementing a Database in MS Access

- Open Access
- Go to File … New … blank database
- Save as NPP.mdb

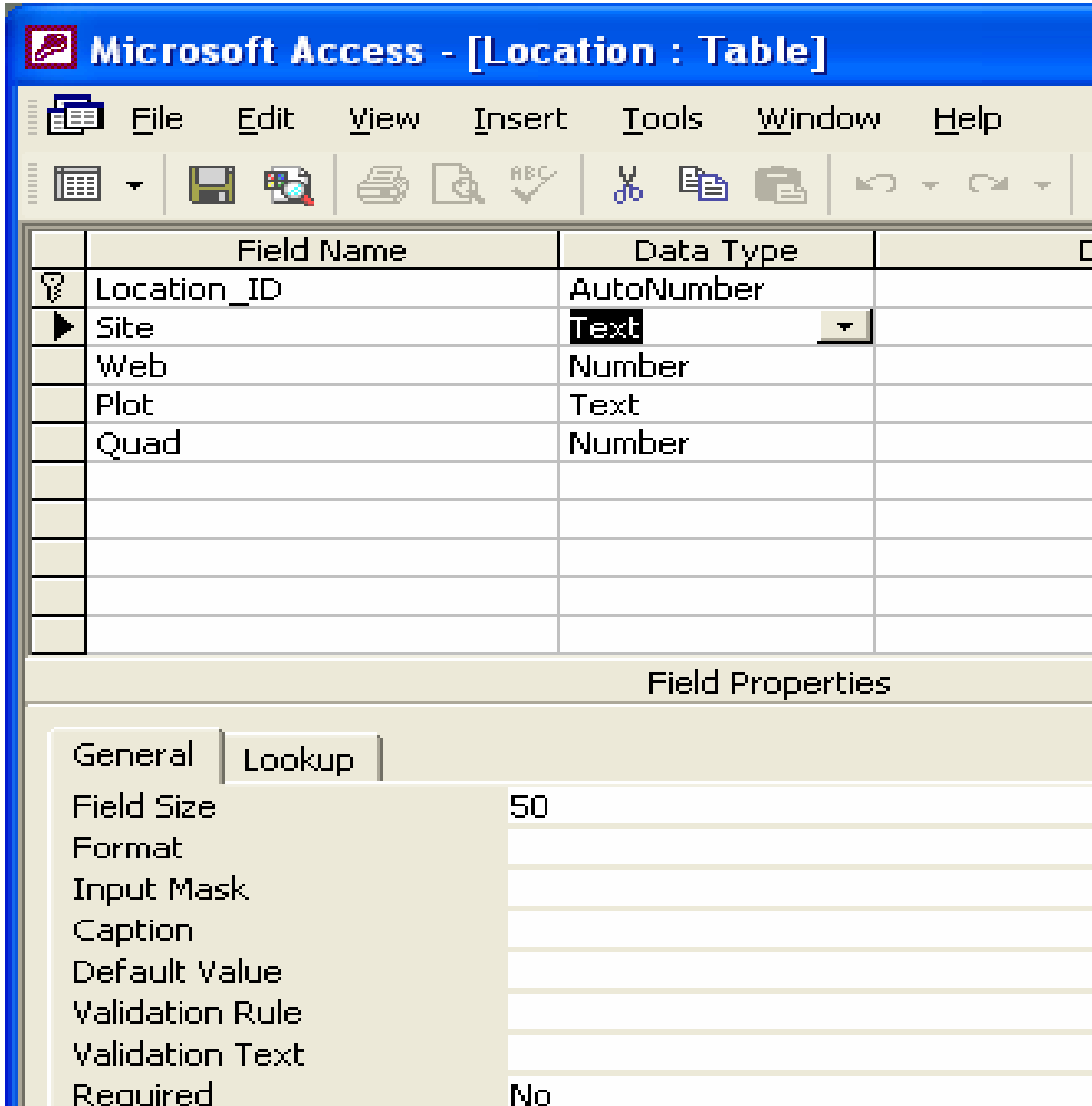
Defining tables

- Select “Tables” in the Objects column in the Database Window
- Select “Create table in Design View” by double-clicking



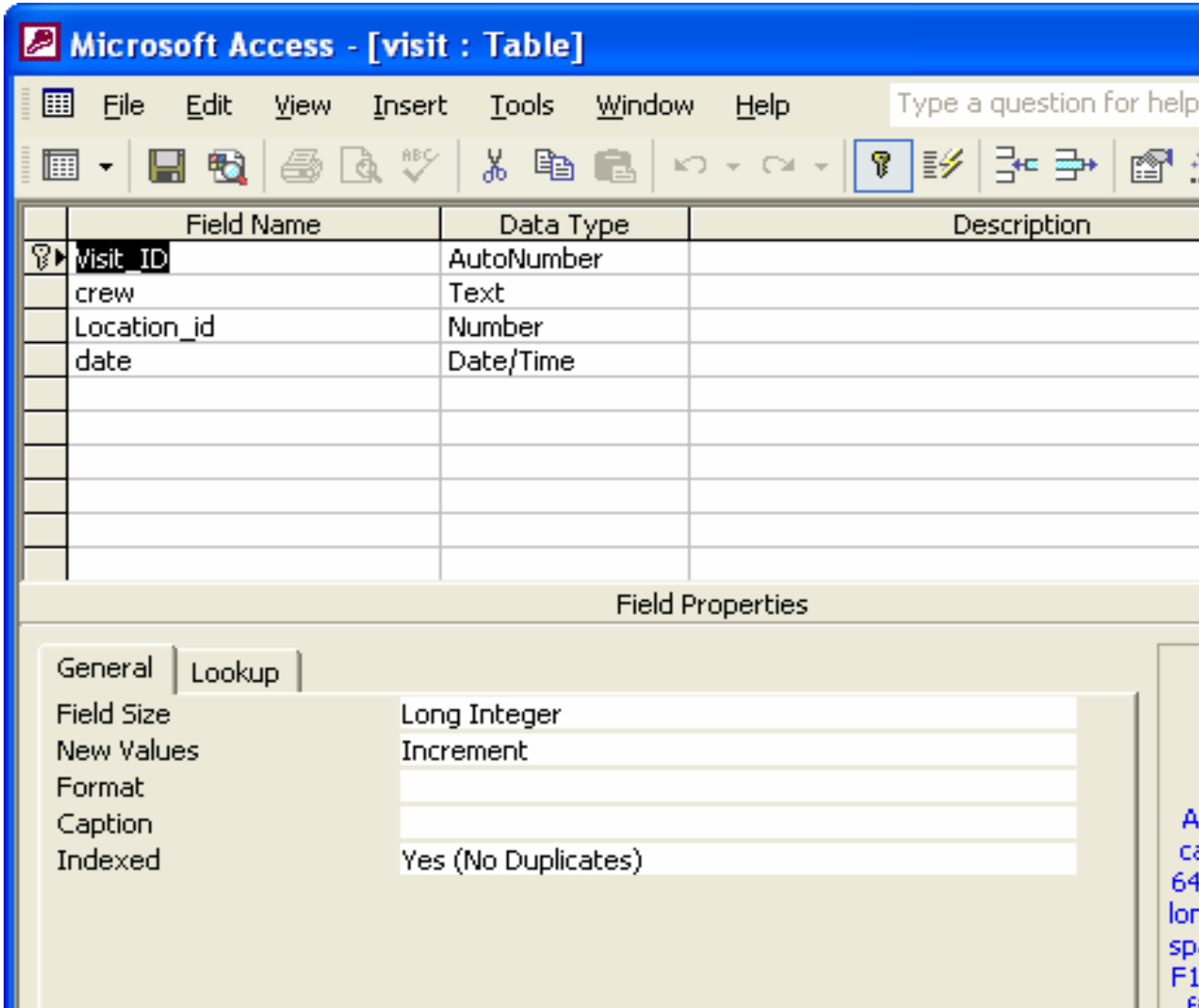
Define the Location table

- Enter variable names and select the data types as shown
- Note that field size and other properties can be changed in the “Field Properties” area
- Right click on the box to the left of Location_ID and select Primary Key
- Go to File > Save and save the table as Location
- Close the table by clicking on the X in the upper right-hand corner



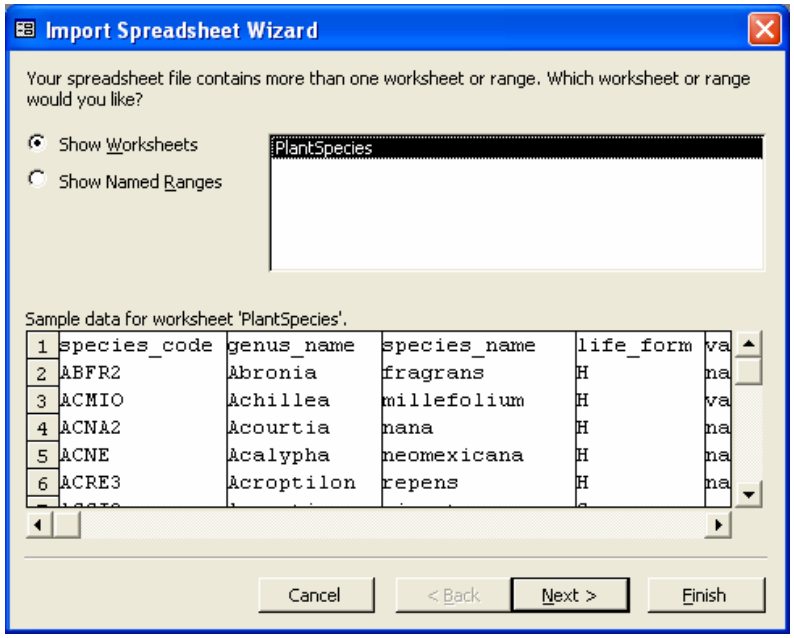
Define Visit table

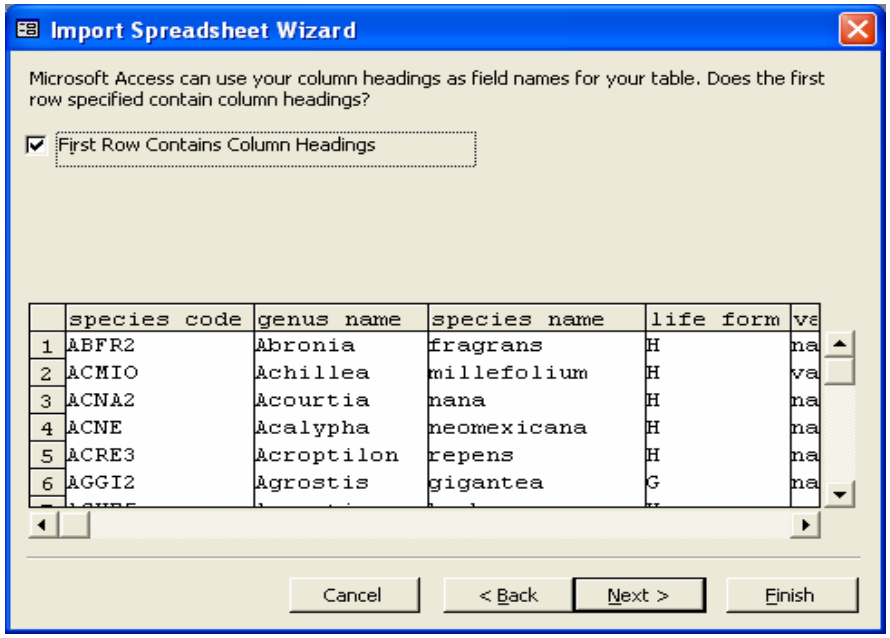
- Select “create table in design view” from the Database window
- Enter the fields as shown
- Make Visit_ID the primary key
- Save table as “Visit” and close the table



Import PlantSpecies table

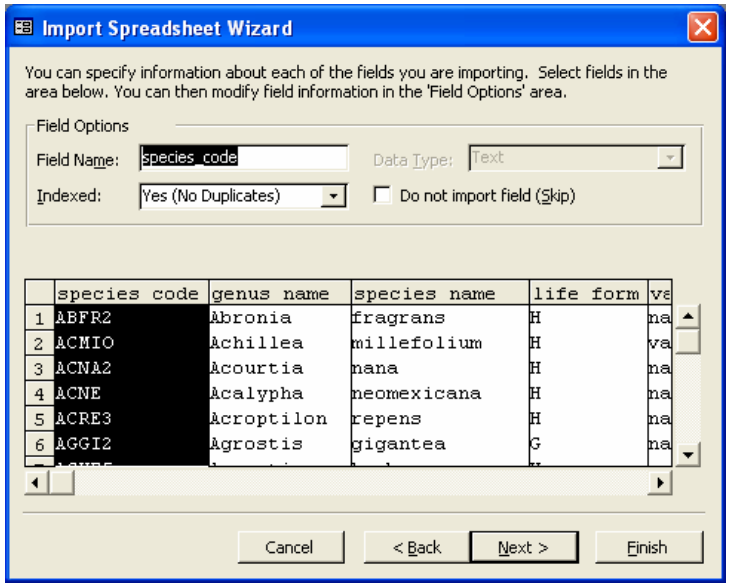
- Go to File … Get External Data … Import…





- Select ‘Next’
- Check ‘First Row Contains Column Headings’
- Next

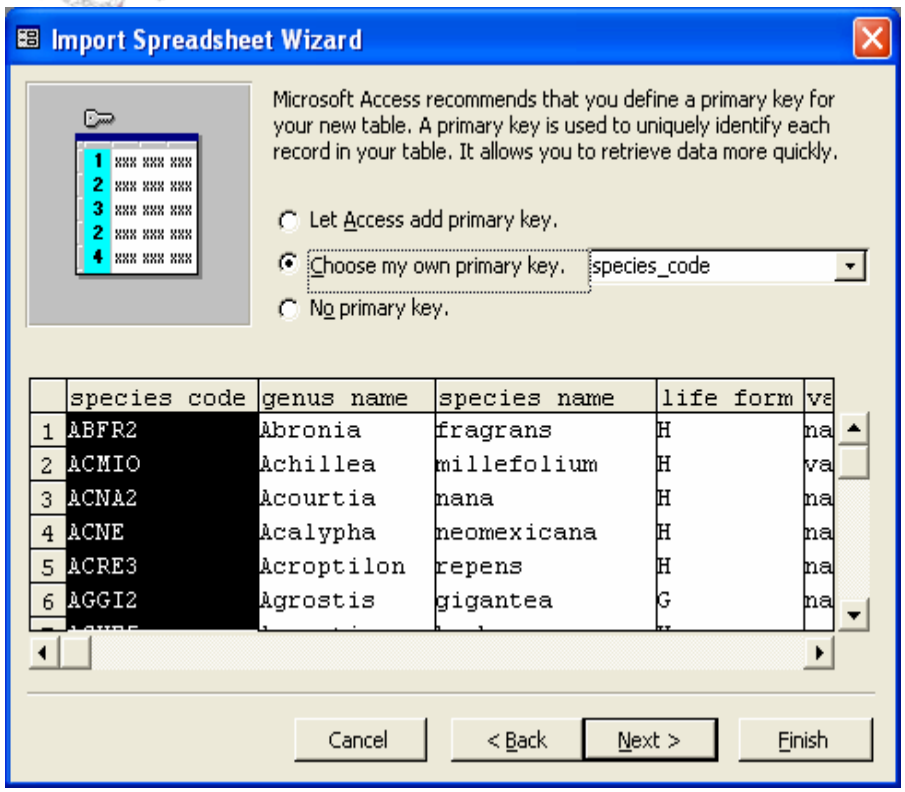
Import PlantSpecies table

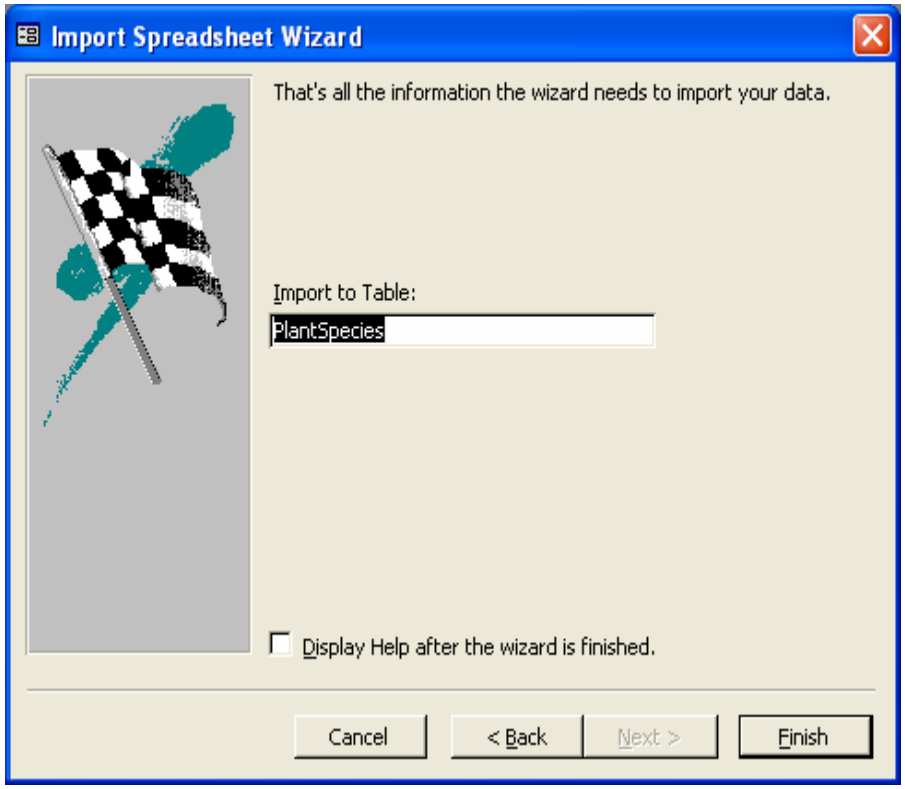


- Select 'In a New Table'
- Next

- For species_code you can specify Indexed with no duplicates, because this will be the primary key

Finish Importing PlantSpecies Table



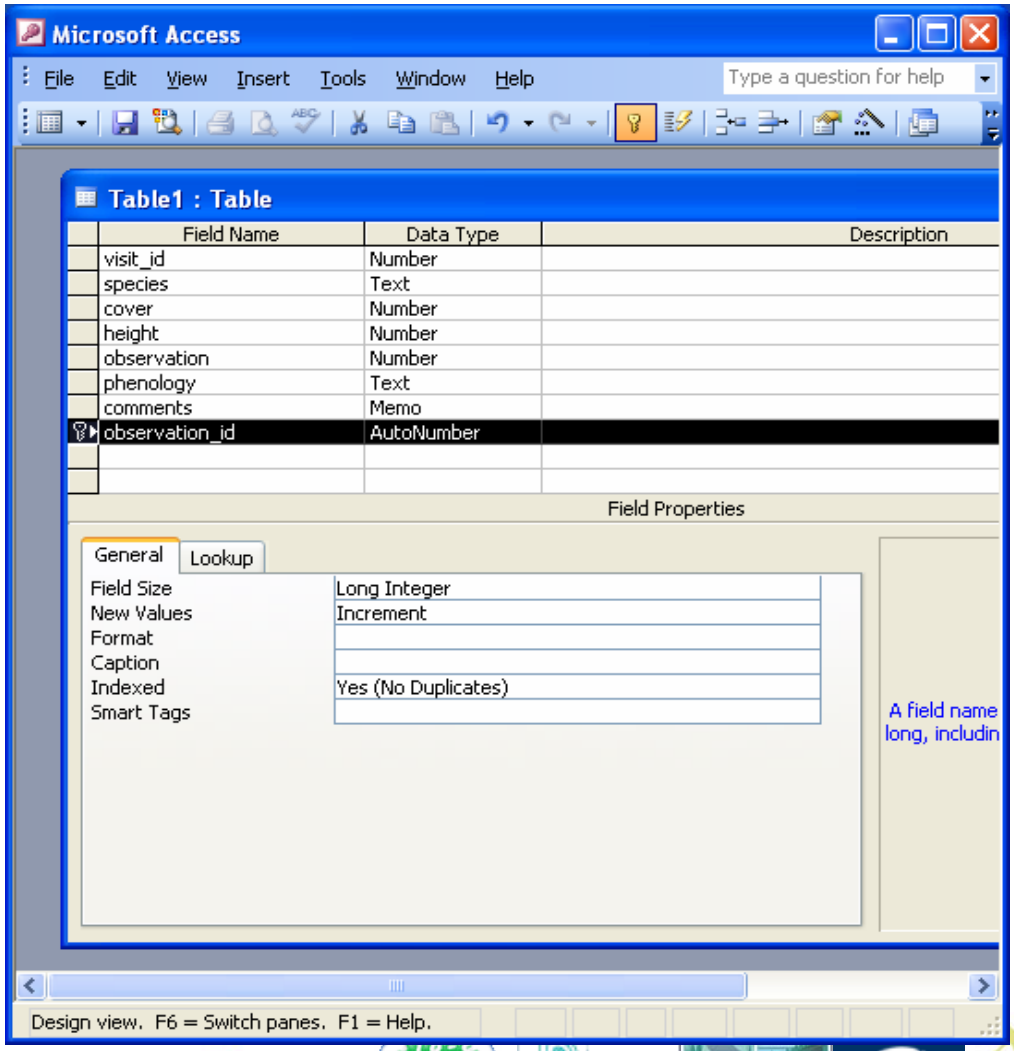


- Select "choose my own primary key" and choose species_code from the drop-down list
- Next

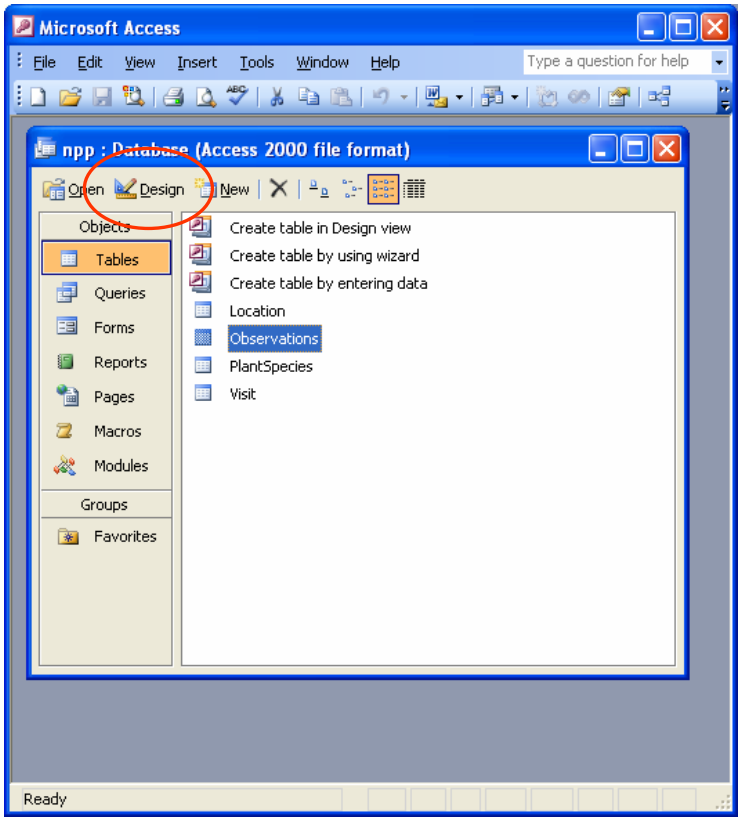
- Accept the name PlantSpecies for the table
- Select 'Finish'

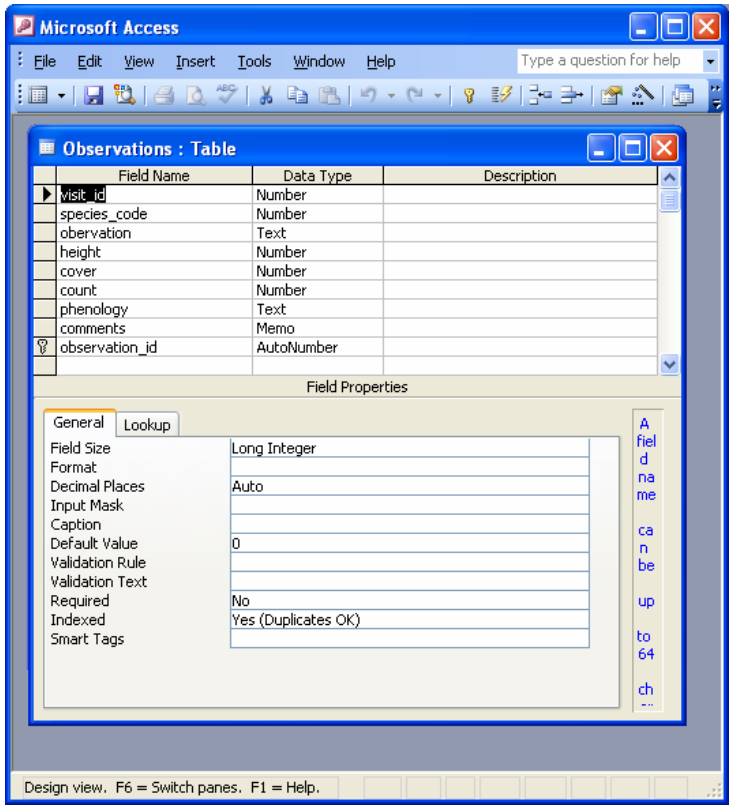
Define Observation Table

- Select “Create table in Design View” from the database window
- Enter the fields as shown
- Make observation_id the primary key
- Save the table and name it Observation



Open Observation Table in Design View

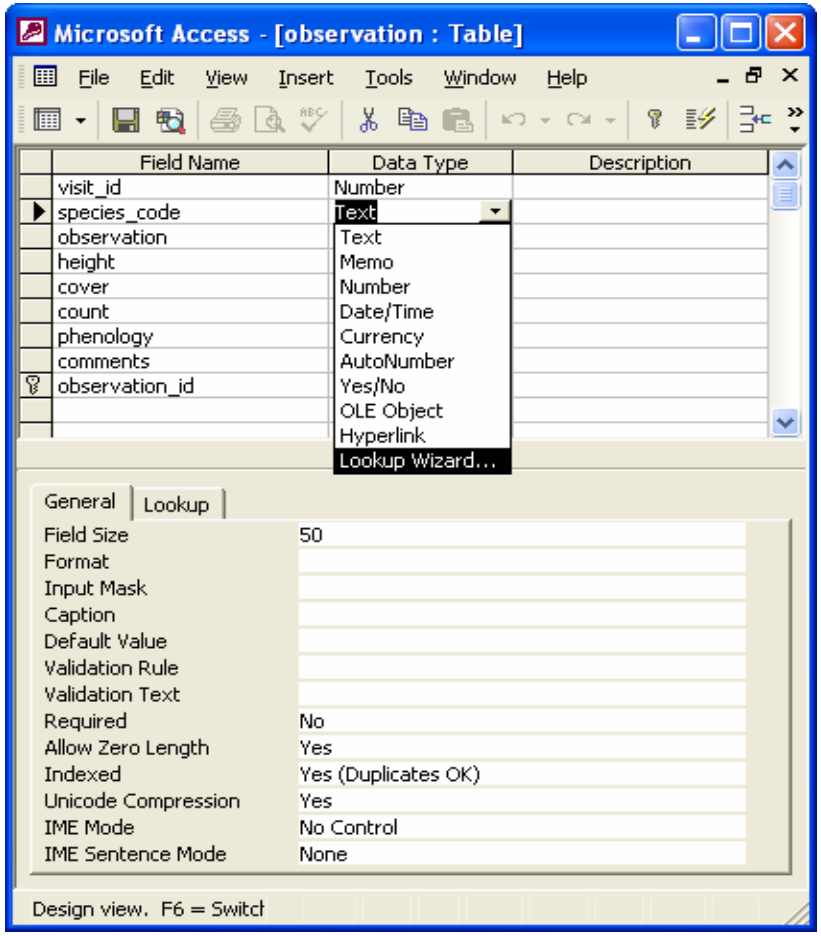




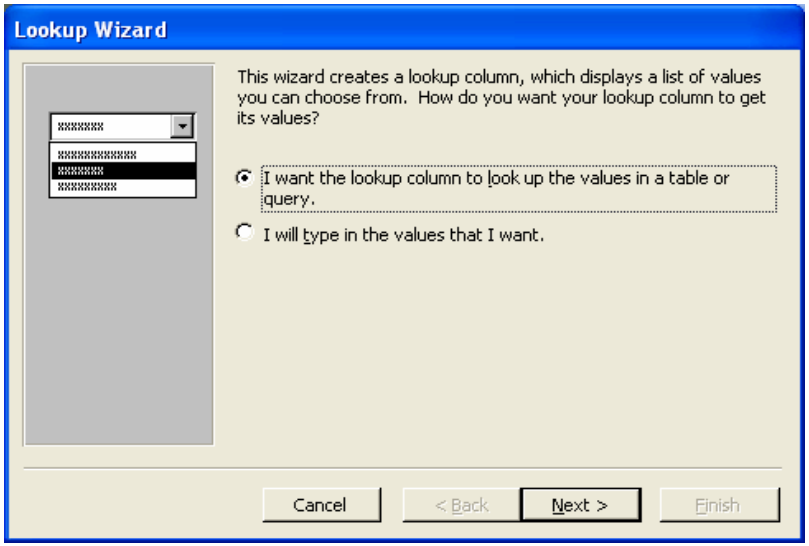
- Highlight the Observation table, and then click on 'Design'

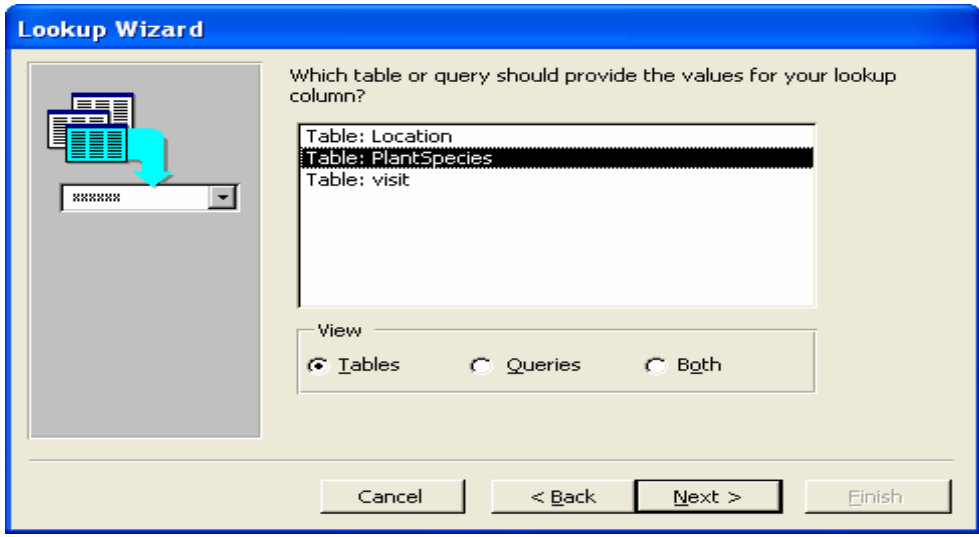
Constrain entries in Species_code field to the species codes listed in the PlantSpecies table

- Select Lookup Wizard under Data Type for species_code



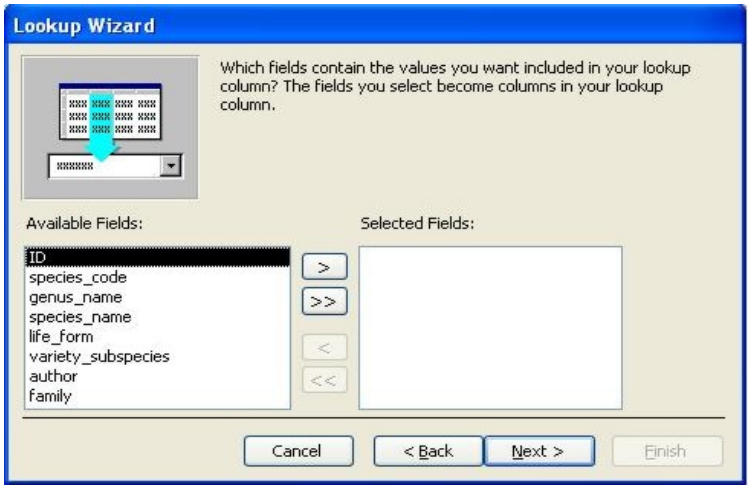
Using the lookup wizard

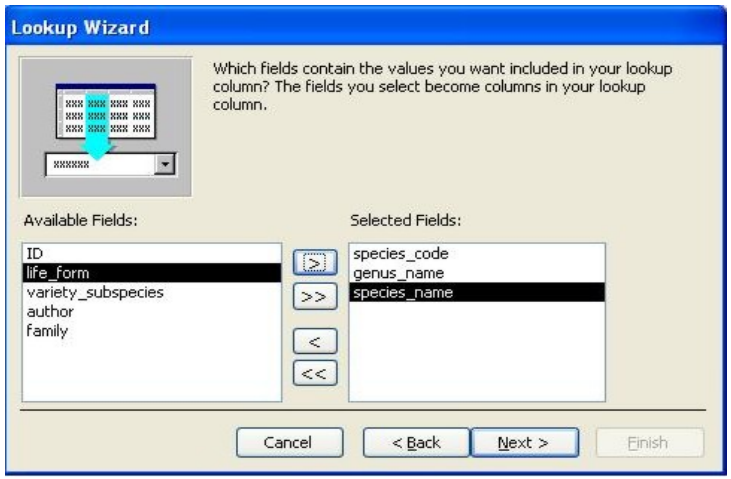




- The lookup column will use records in the table PlantSpecies

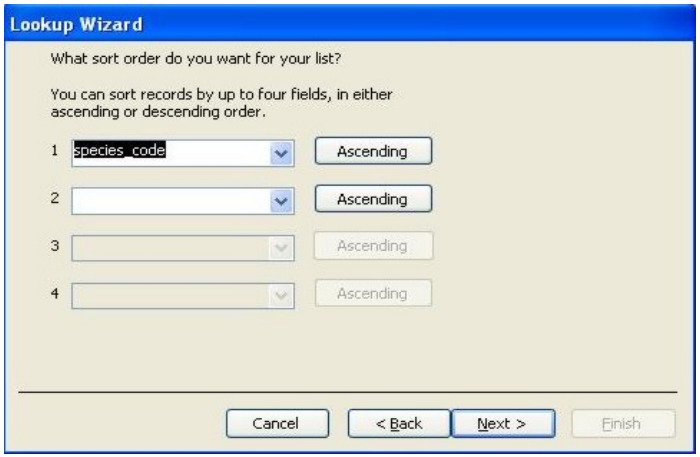
Using the lookup wizard

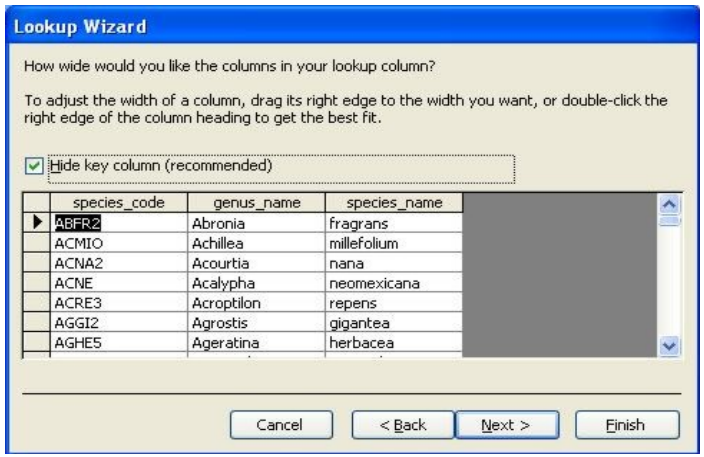




- Select species_code, genus_name, and species_name
- Next

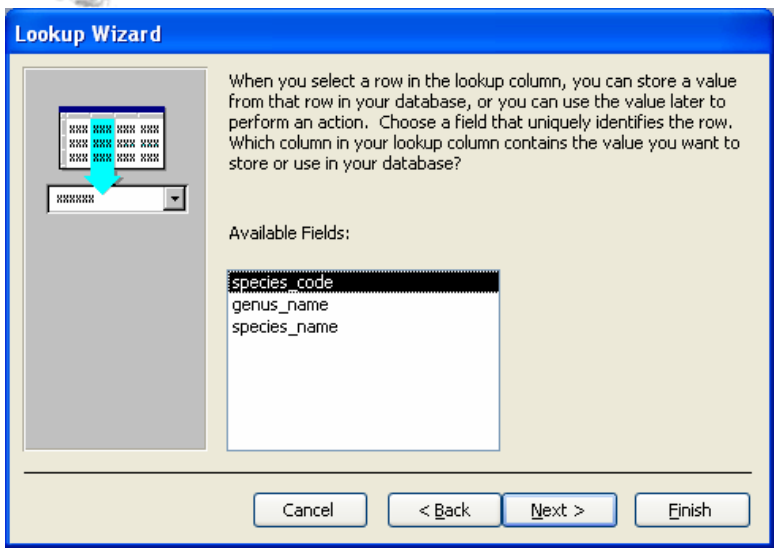
Using the lookup wizard

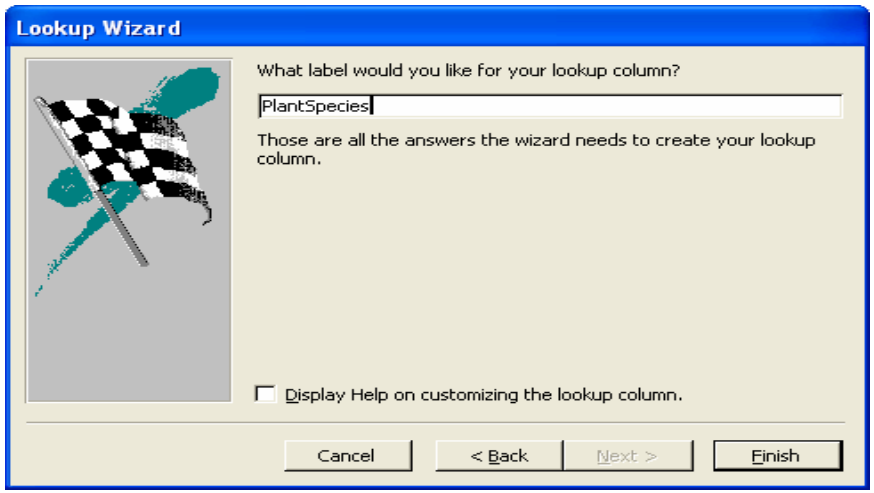




- Select ascending order on species_code
- If Species_code is not visible, uncheck the Hide Key Column box

Using the lookup wizard

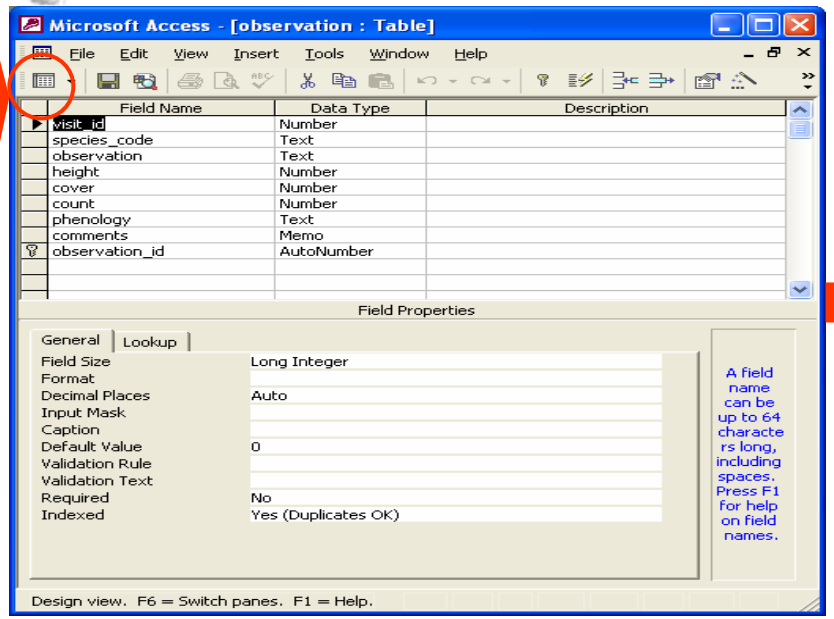


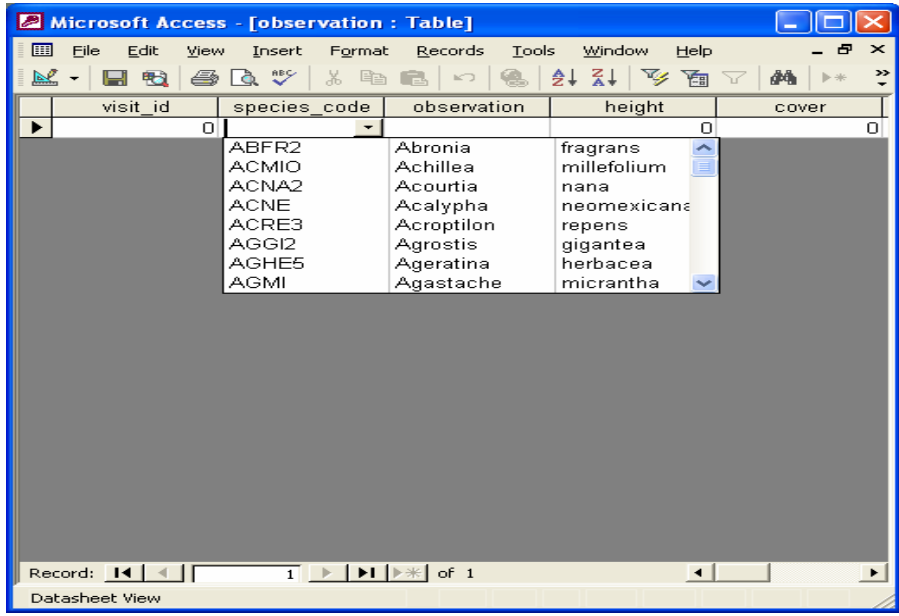


- Accept species_code as the value to be stored in the database
- Next

- Accept PlantSpecies as the default name for the lookup column
- Click Finish

Switch between design and table view

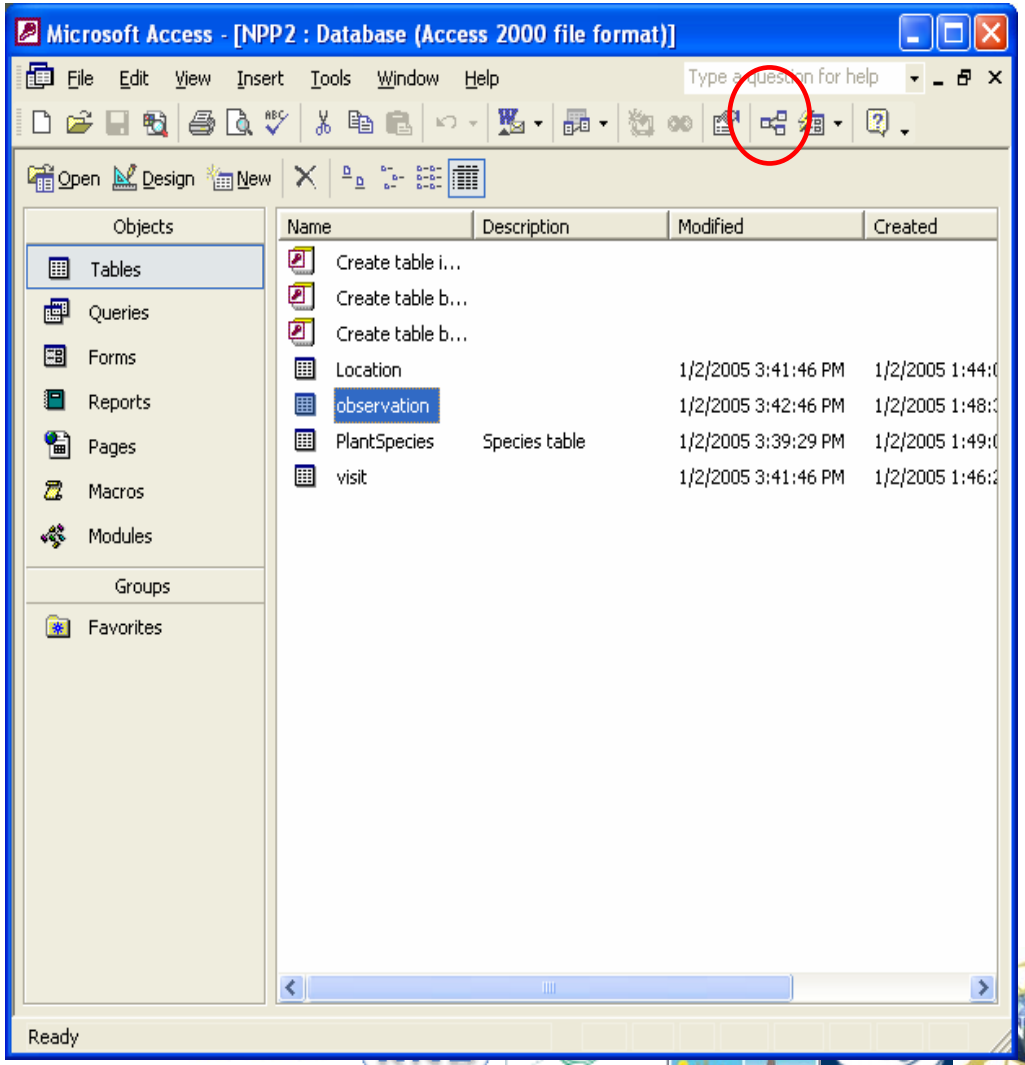




- Click on View button in upper left-hand corner to switch from "design view" to "datasheet view"
- Click in the species_code field to see the drop-down list
- CLOSE the observation table

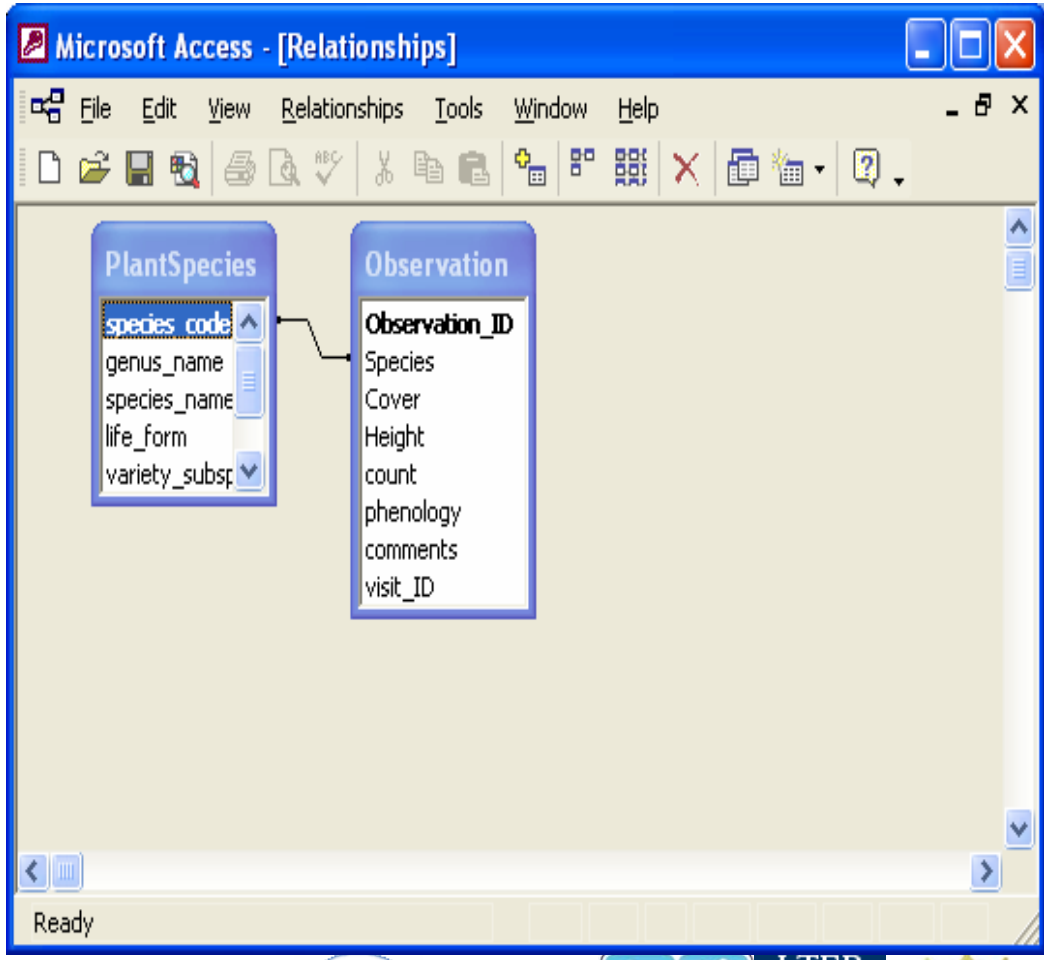
Define relationships between tables

- Click on the "relationship" icon in the database window



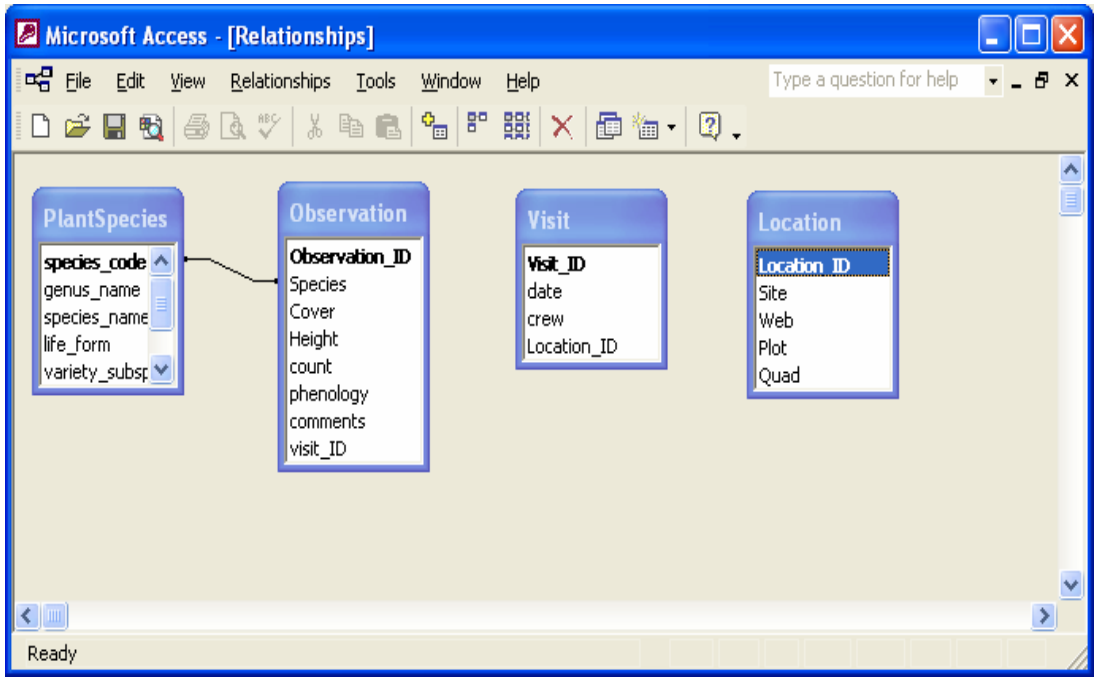
Define relationships: add tables to the relationships window

- PlantSpecies and Observation are already shown in the relationships window because a relationship was defined with the Lookup wizard
- Right click in the window and choose "Show table" to add the Location and Visit tables
- Close the "Show Table" window



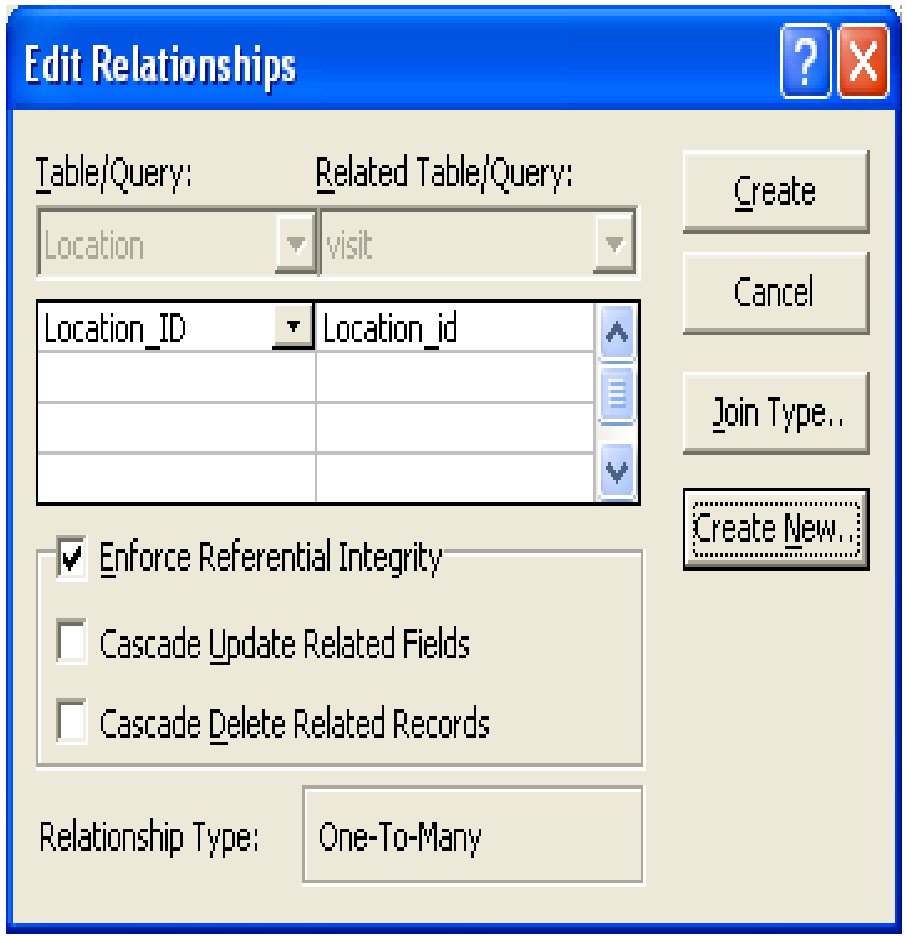
Create relationship between Location and visit tables

- left-click and hold on Location_ID in the Location table and drag the icon overtop of Location_ID in the visit table



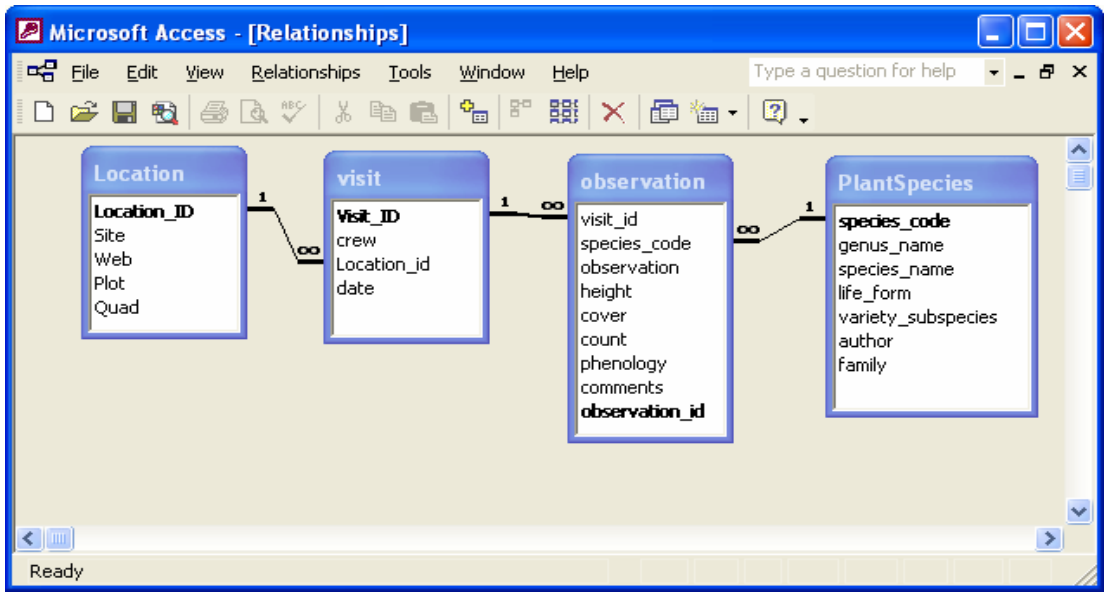
Edit relationships

- Enforce referential Integrity (this means that you won't be able to delete a record in the Location table if there is a related table in the Visit table)
- Note that the relationship being created is One-to-Many
- Click on "Create"

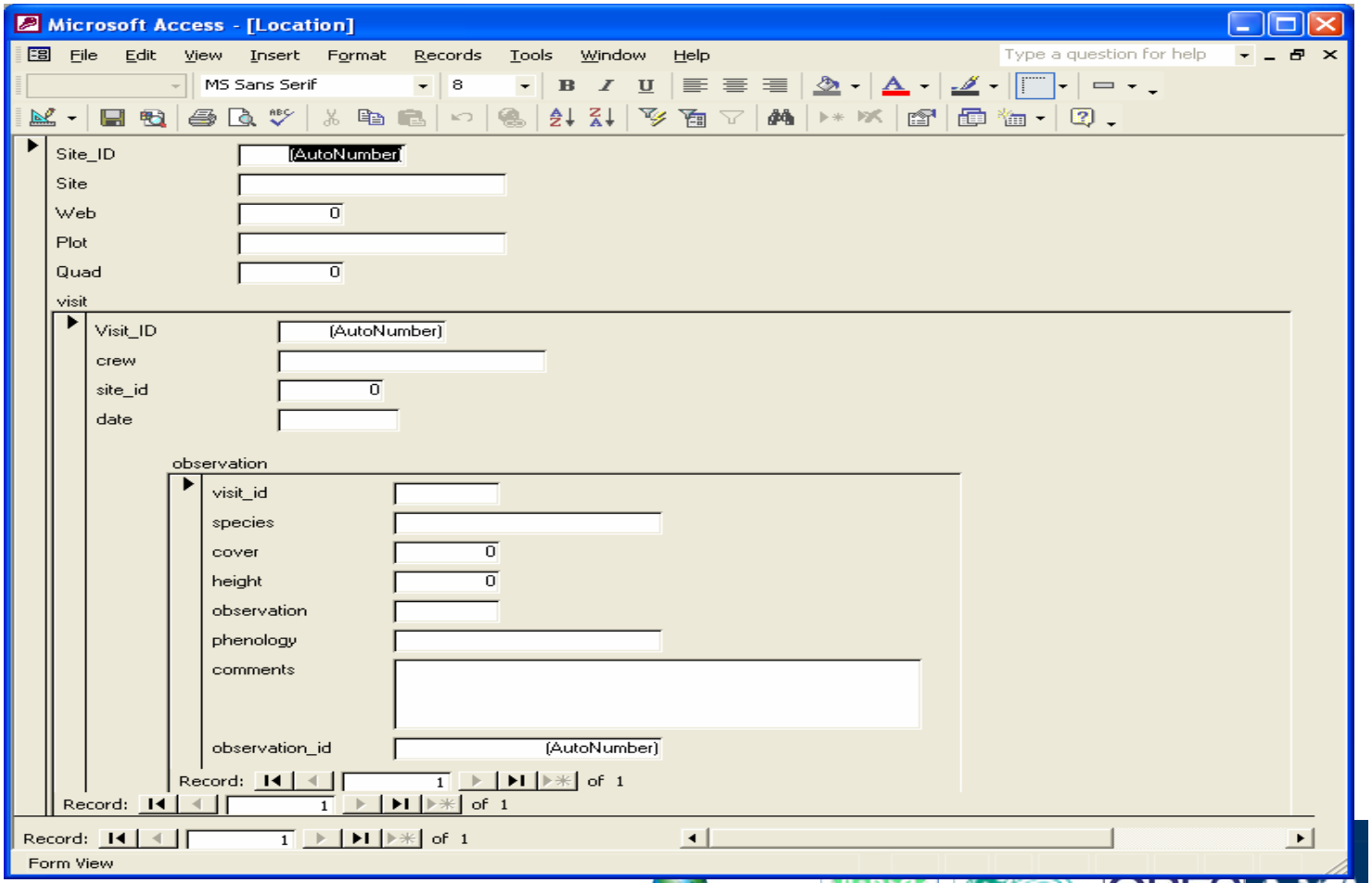


Finish defining relationships

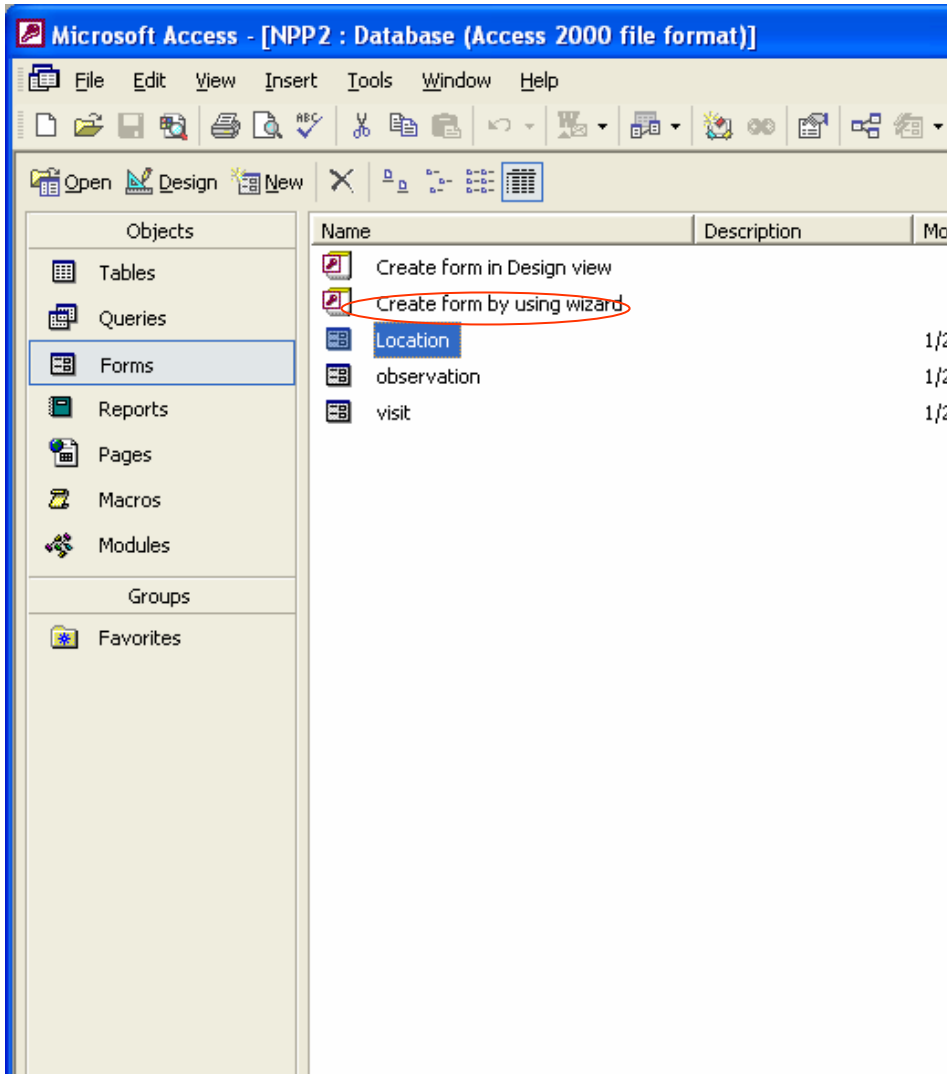
- Left click on Visit_ID in Visit table and drag the icon overtop of Visit_ID in the Observation table; enforce referential integrity
- Close the relationships window; save changes if prompted



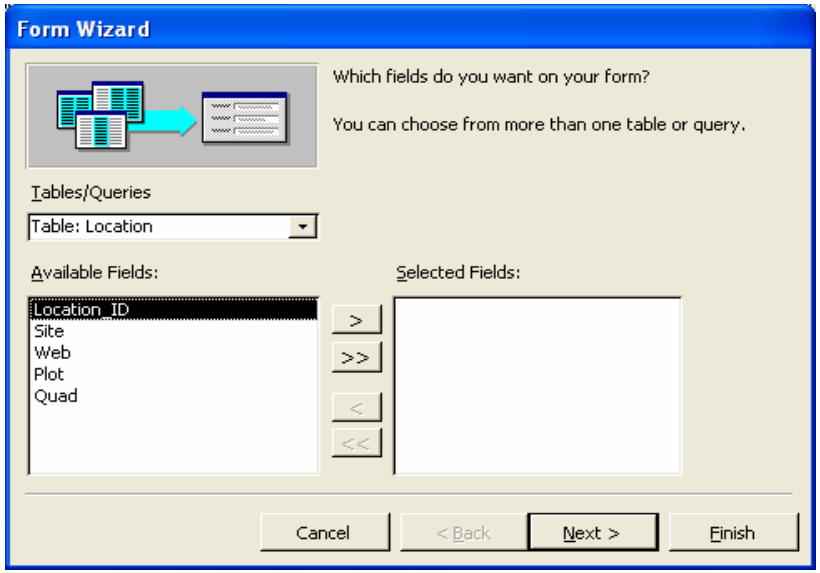
Now create a data entry form similar to this one:

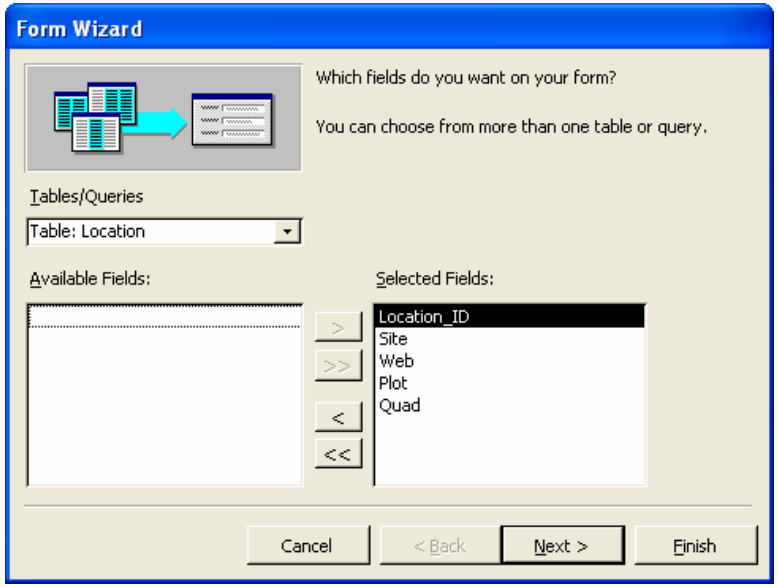


- Click on Forms in the database window
- Then click on "Create form by using wizard"



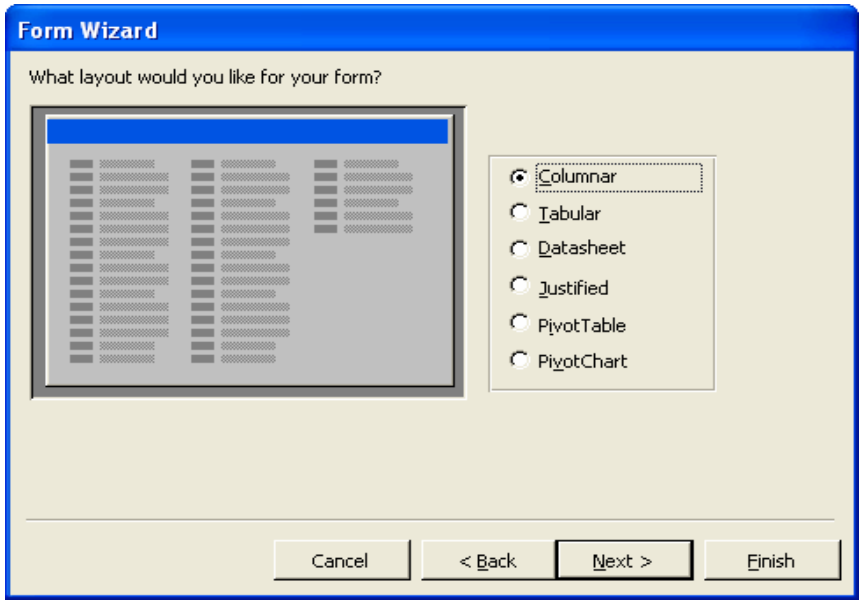
Choose fields from the Location table to display in the form

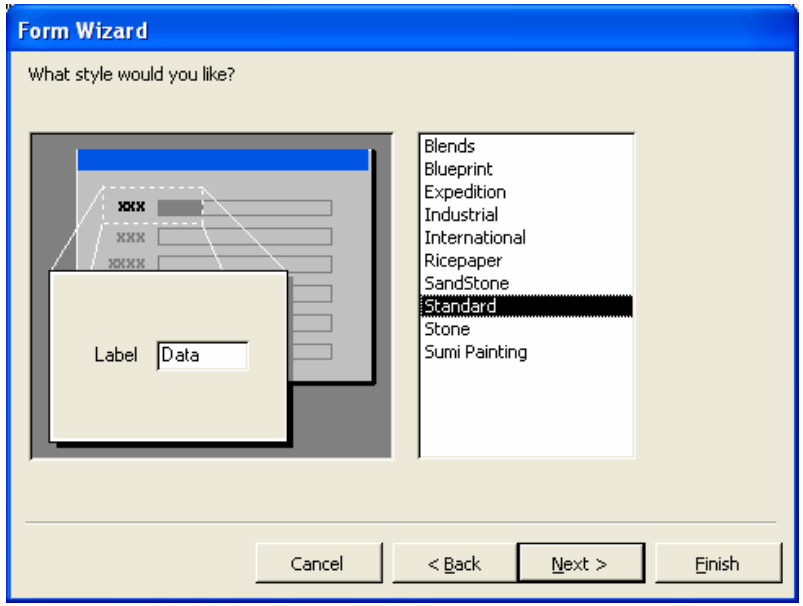




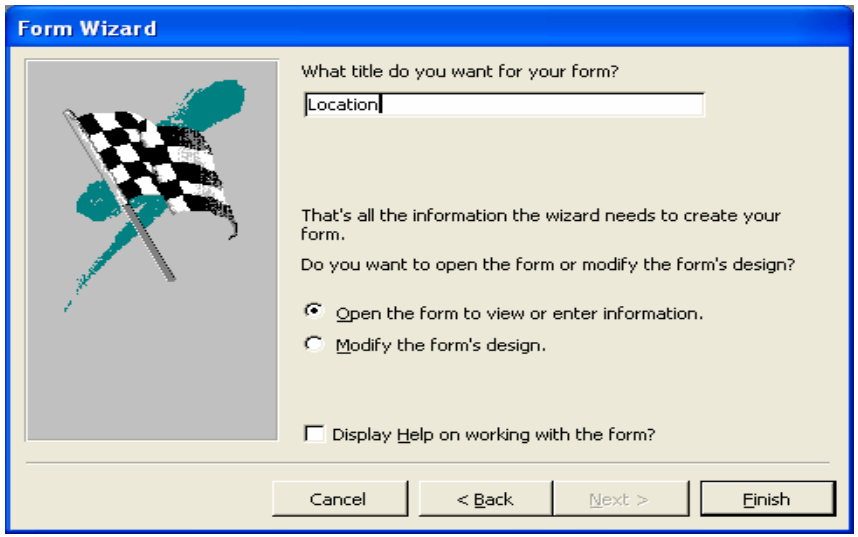
- Click on >> to accept all fields

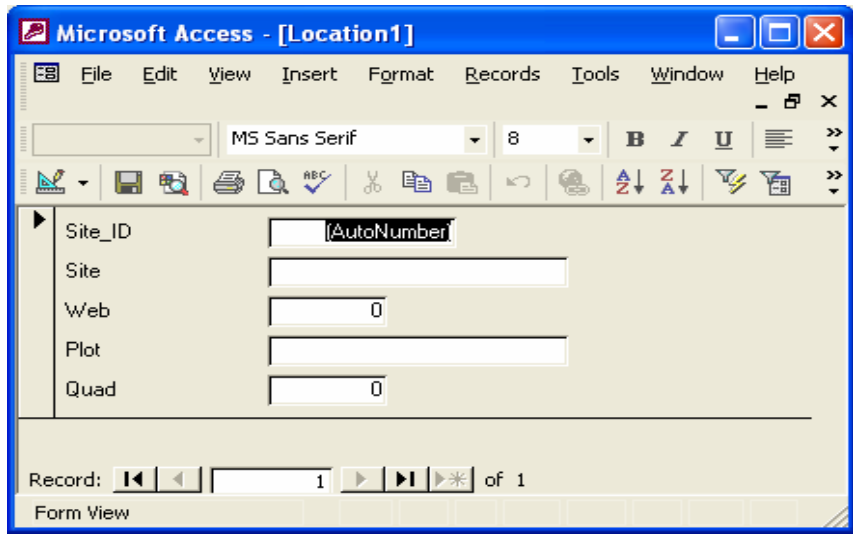
Choose form appearance





- Choose "columnar"
- Choose "standard"



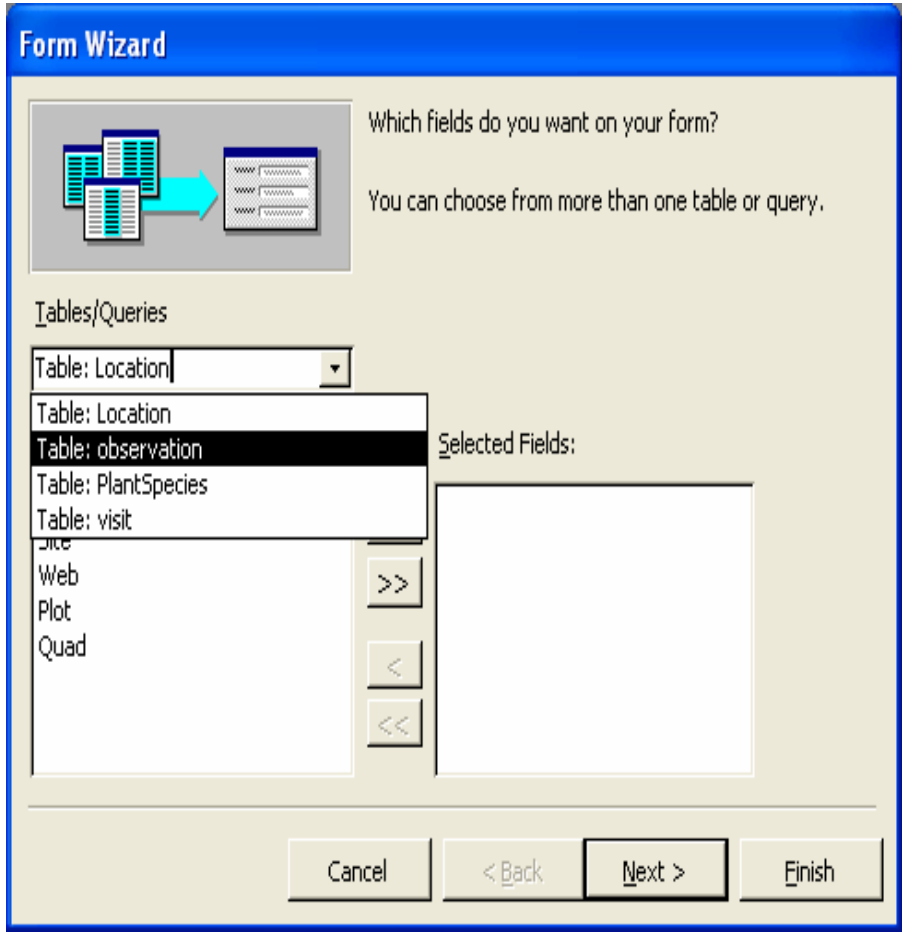


- Accept 'Location' for the name of the table
- Click 'Finish'

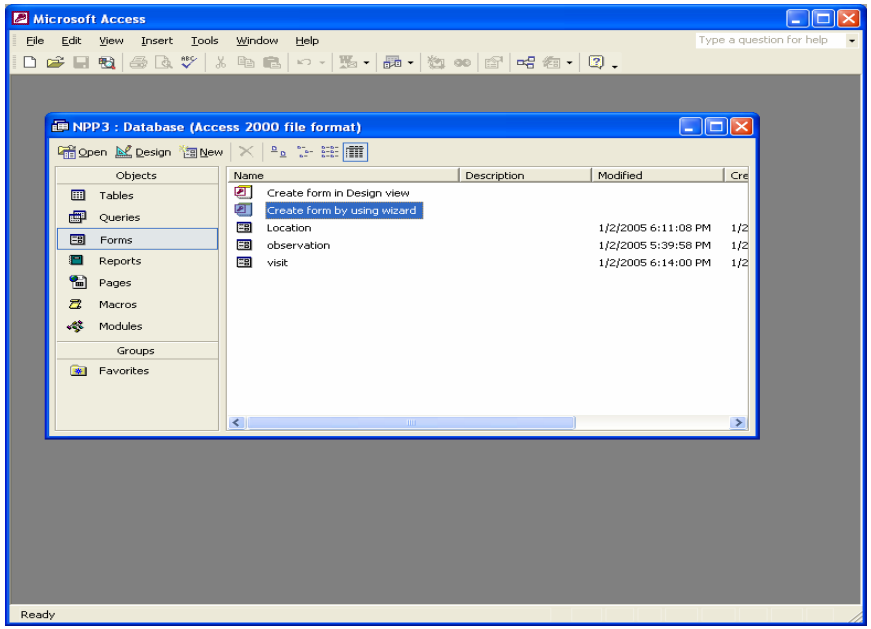
- Your form will look like this

Create more forms

- Create forms for the Visits table and the Observations table using the Form Wizard
- Put all fields in the forms

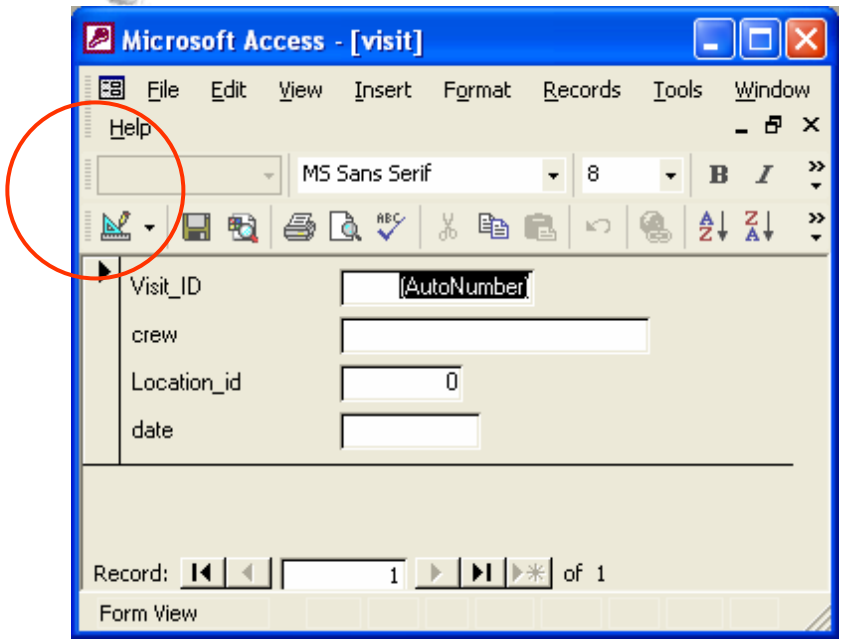


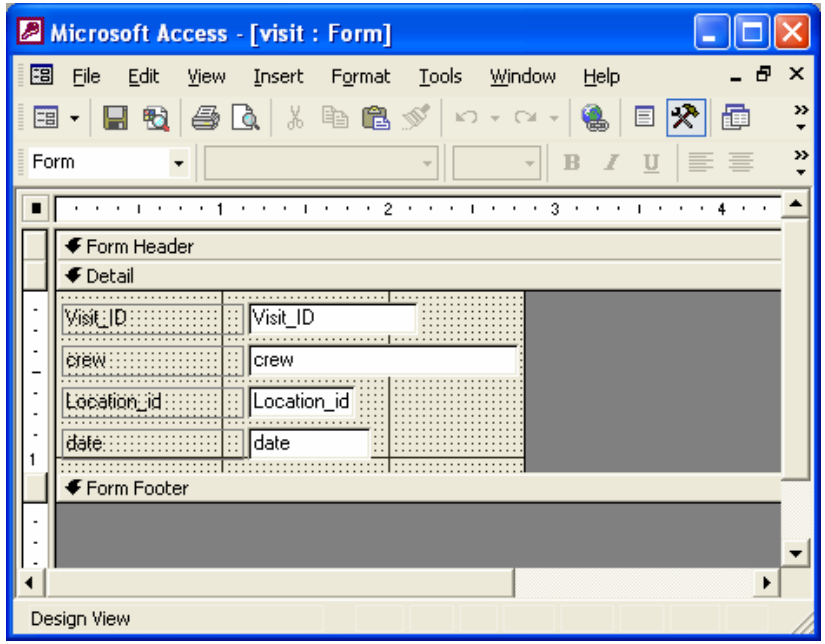
Create subforms



- Now you will embed the Observations table inside the Visit table, and then embed the Visit table inside the Location table

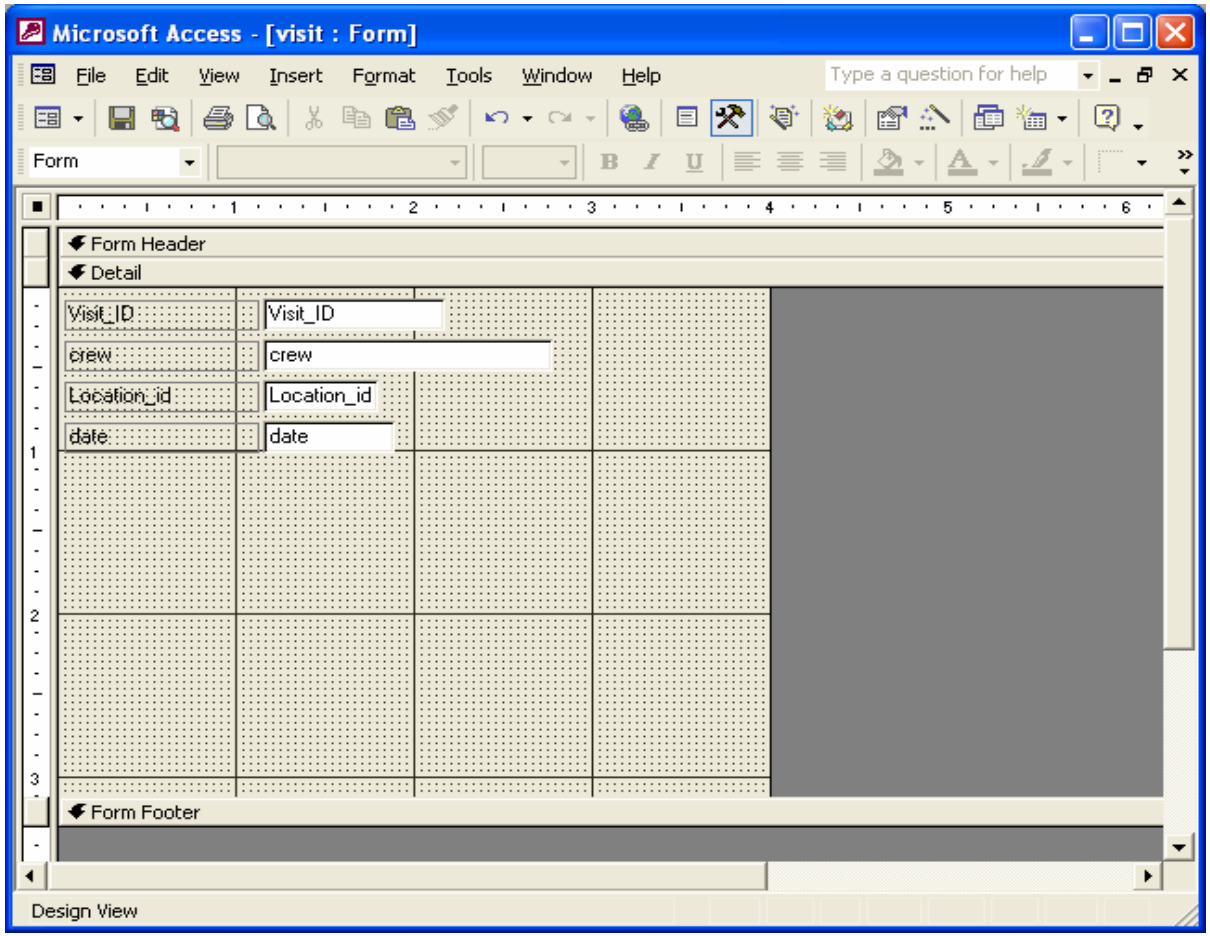
Embed the Observation Table inside the Visit Table

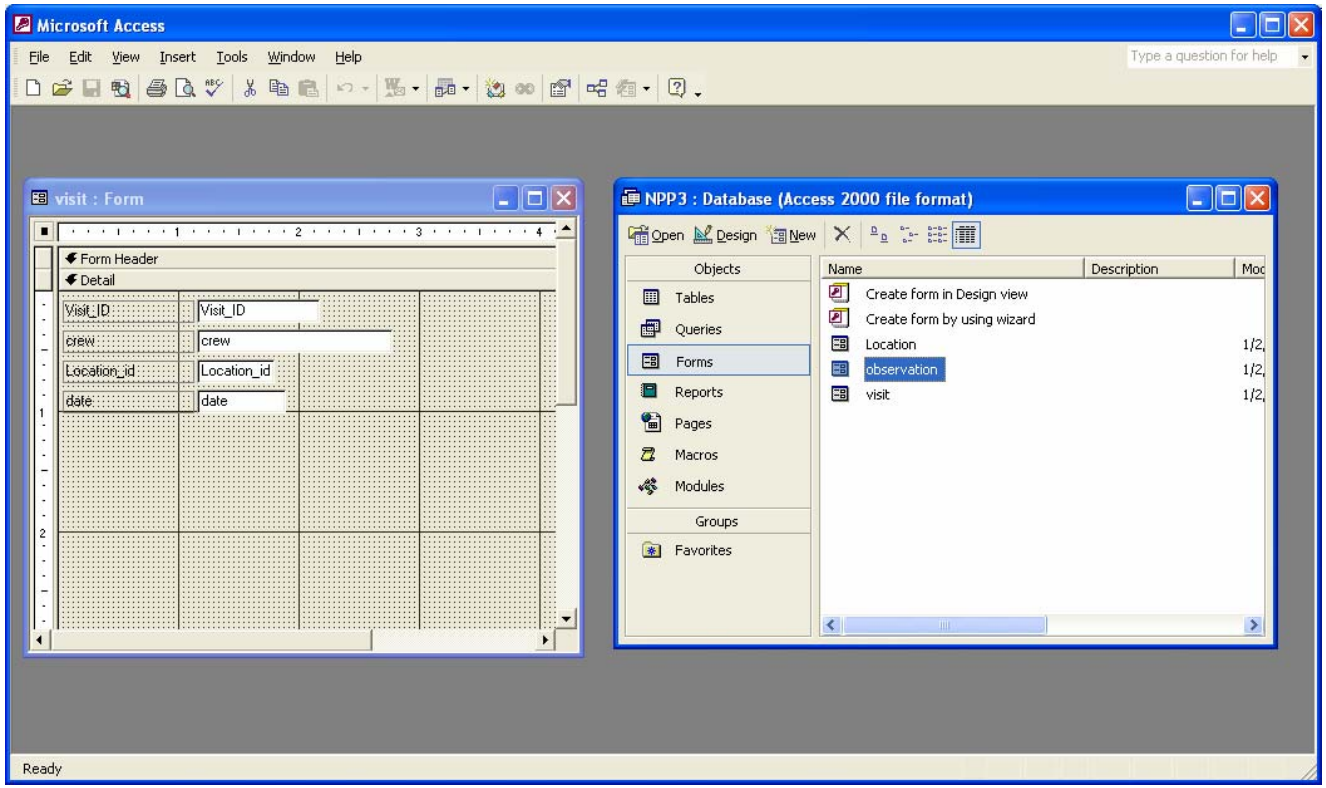




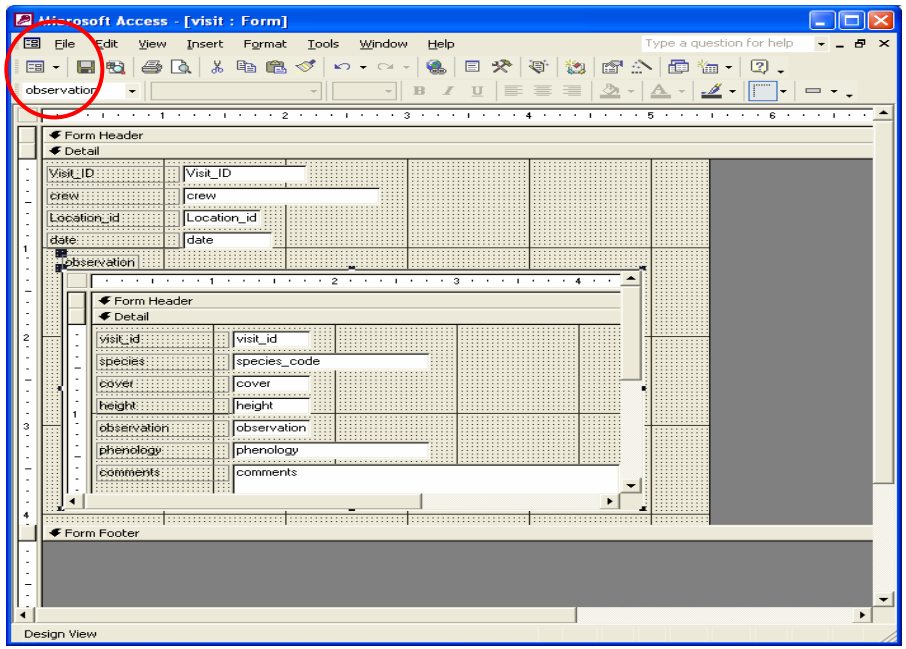
- Open the Visit form and then switch to Design View by clicking on the icon in the upper left-hand corner

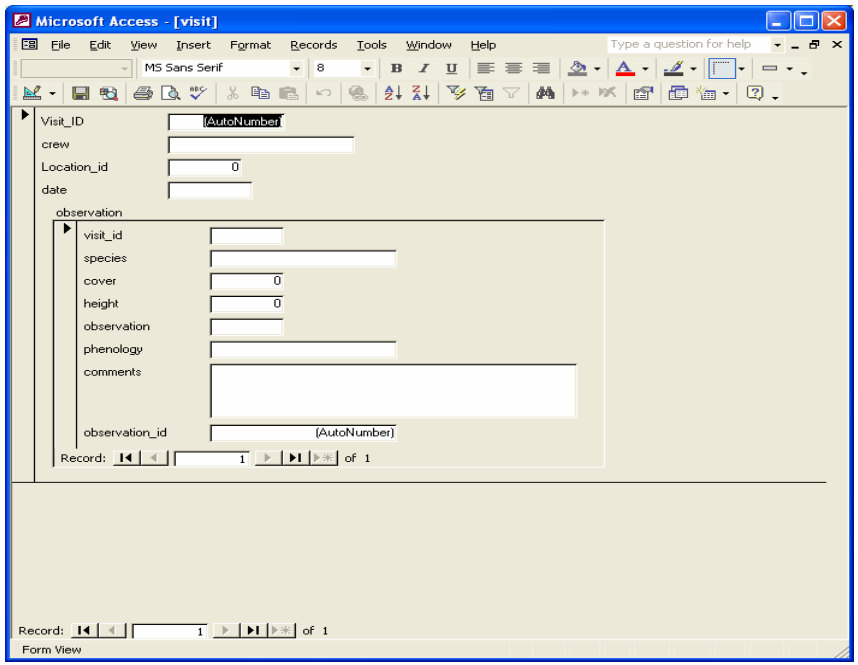
Resize Visit form by clicking on footer and edges and dragging





- Position design view of Visit form and database window (with Forms selected) next to each other
- Left-click and hold on Observation form in Database window and drag it onto the Visit form

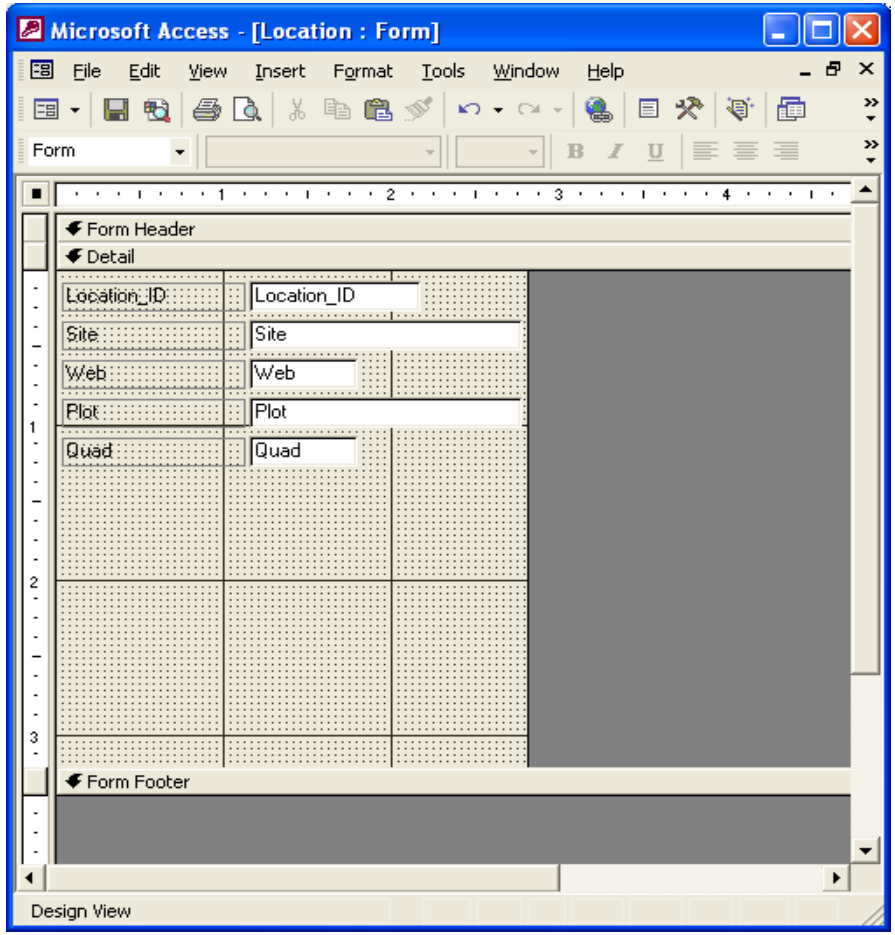


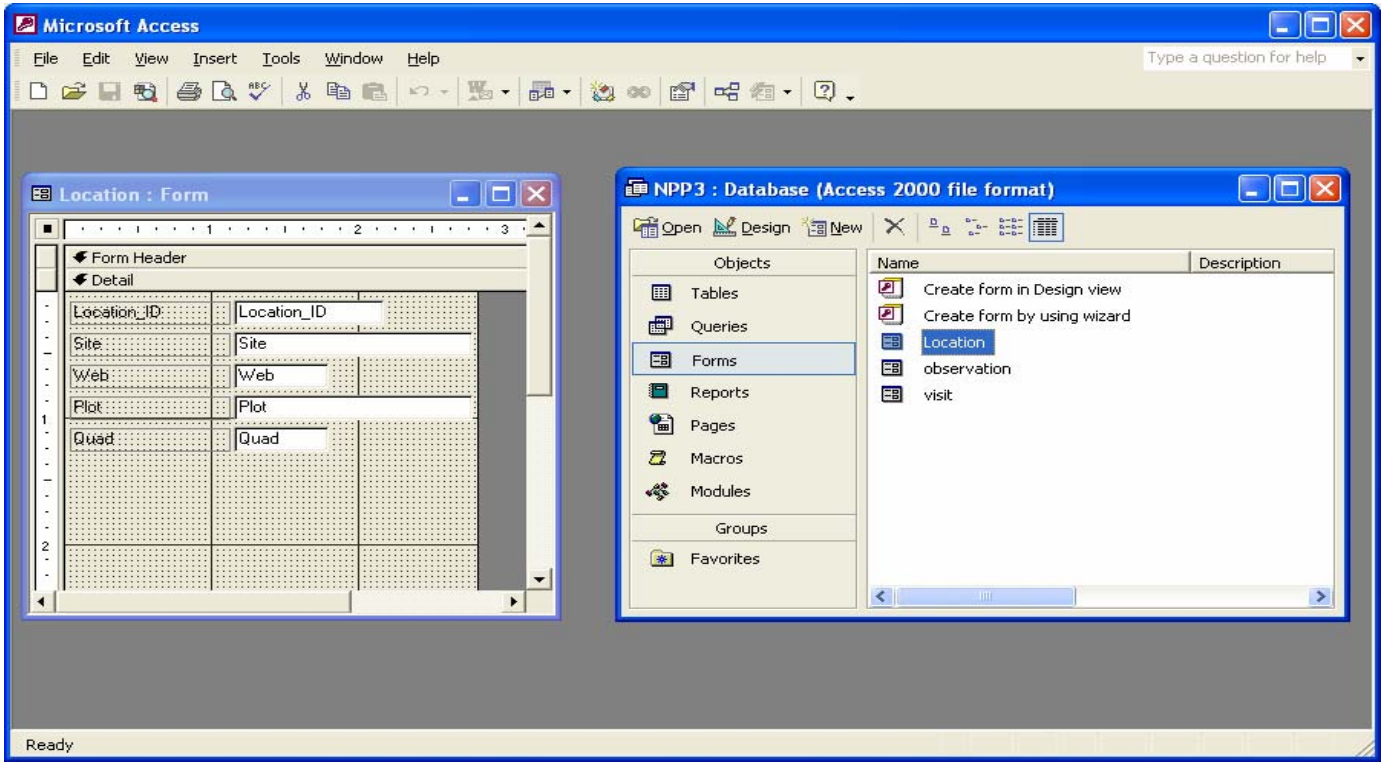


- Click on the View icon to see the completed Visit form with the Observation form embedded within it
- Close and save changes to the Visit Form

Embed the Visit form within the Location form

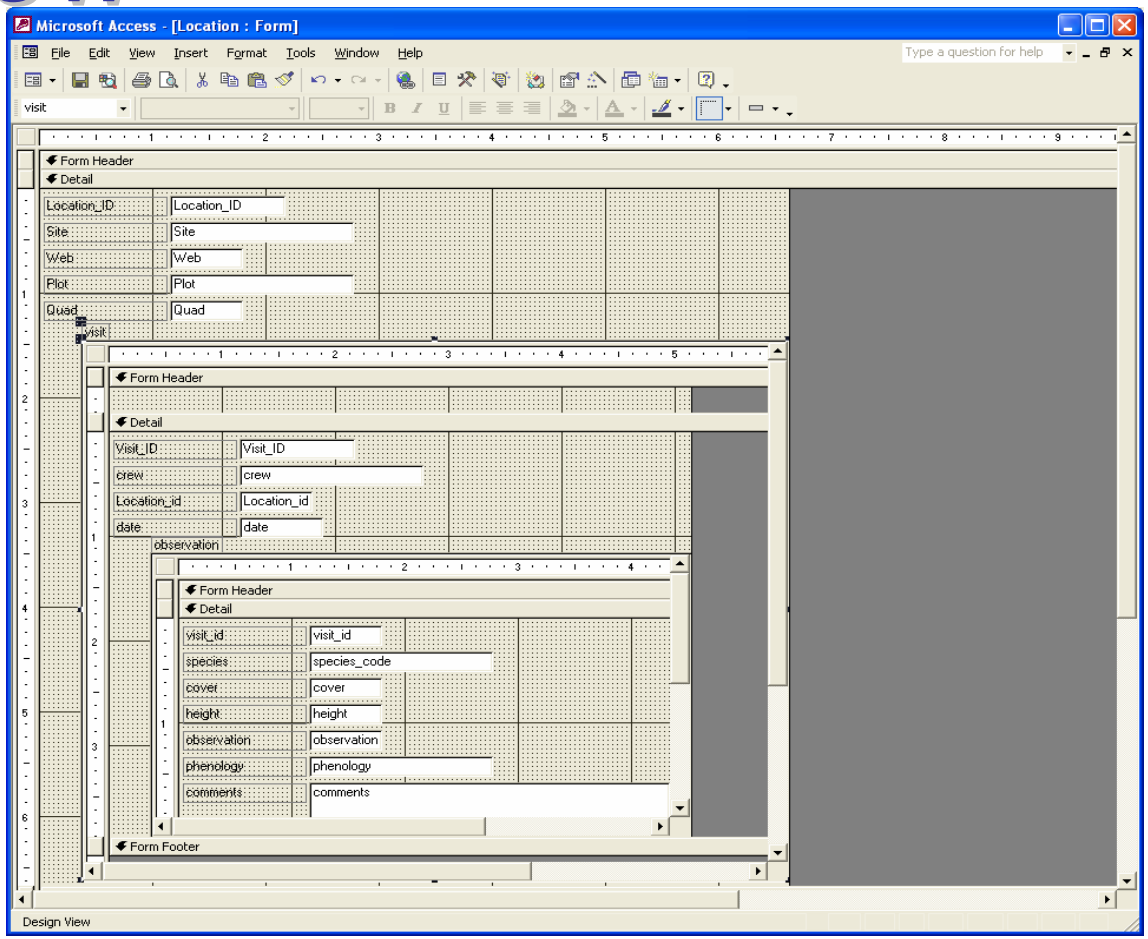
- Open the Location form in Design View and resize it so there is room to embed the Visit form





- Position design view of Location form and database window next to each other
- Left-click and hold on the visit form in the database window and drag it onto the Location form

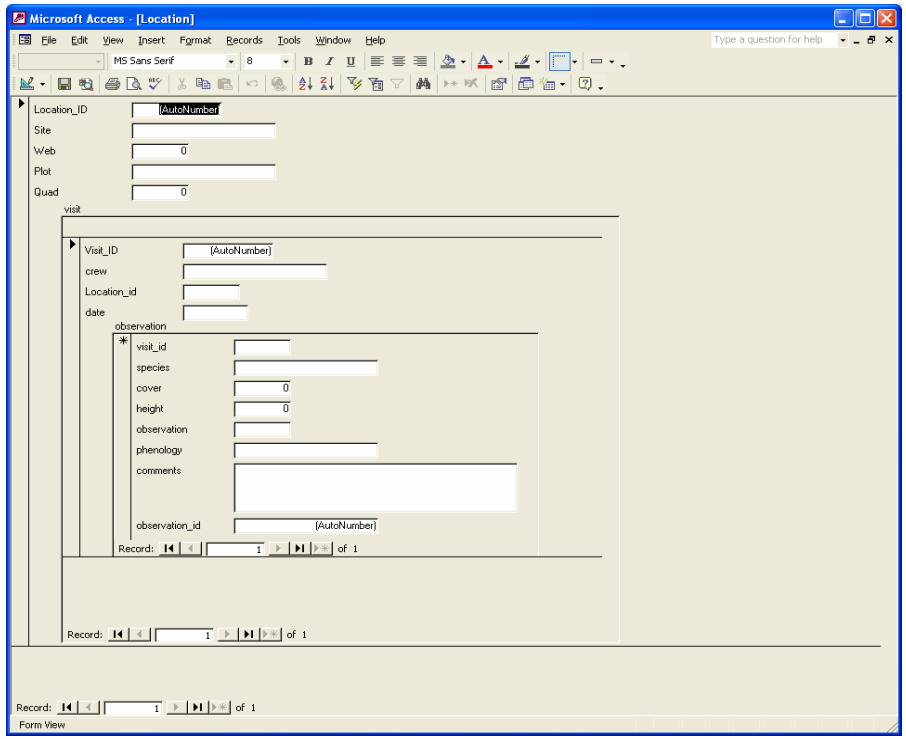
The finished form in design view



- Close and Save the form

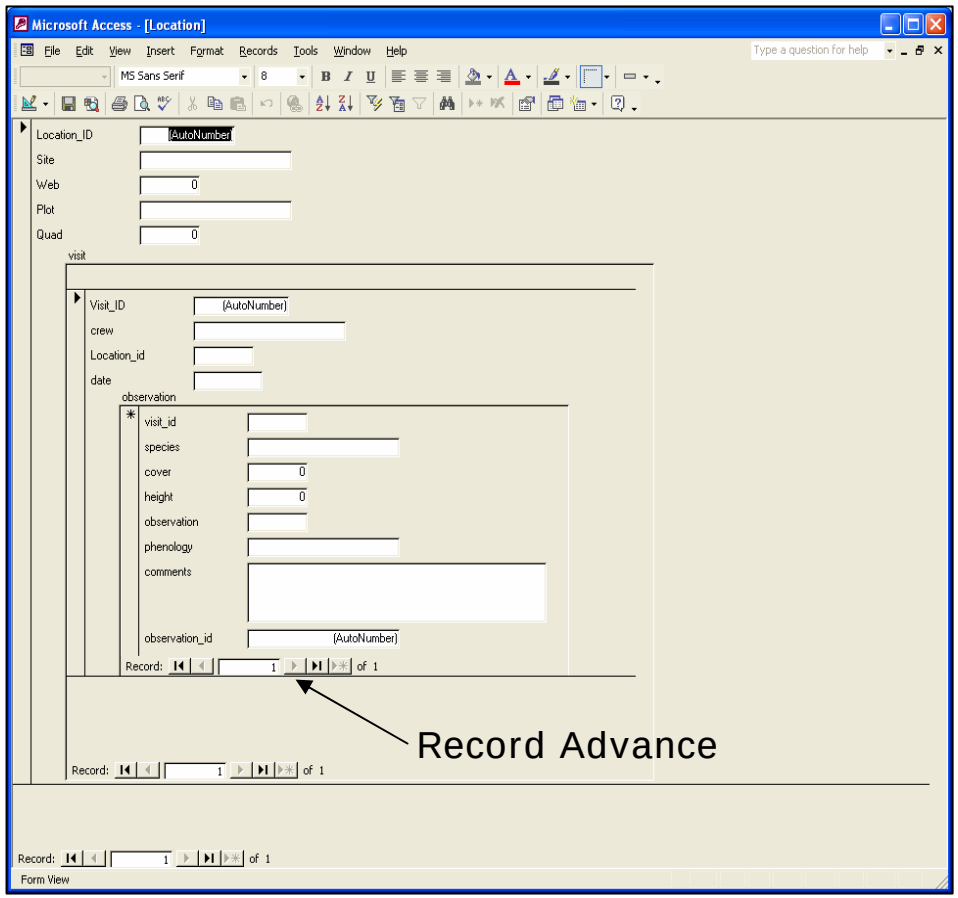
Enter some data

- Open the Location form
- You can enter multiple observations without having to re-enter visit or location information
- In the Location form: enter
  - Site = CM,
  - Web = 1,
  - Plot = N,
  - Quad = 2

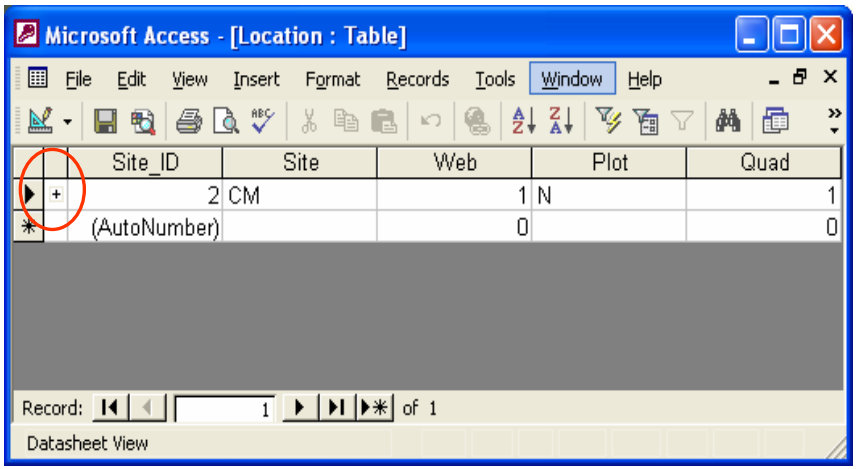


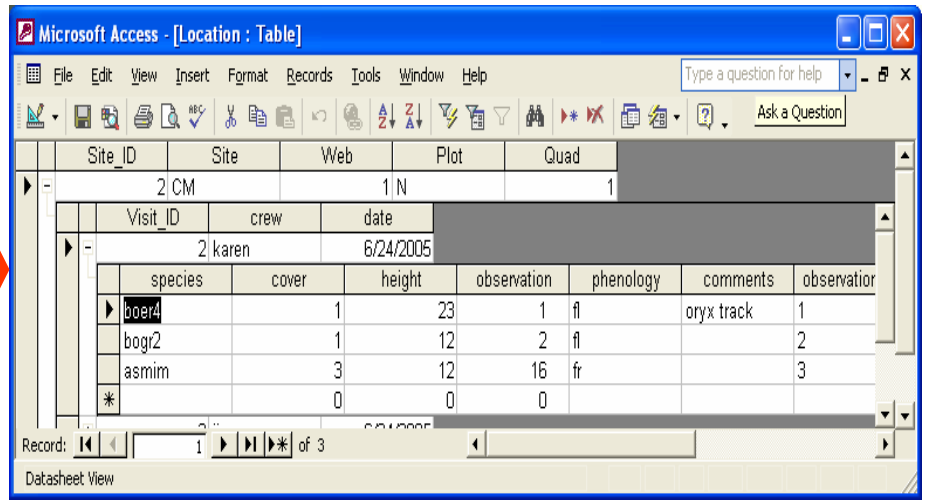
Enter some data

- In the Visit Form, enter
  - Crew = karen
  - Date = 6/25/2004
  - Note that visit_id and location_id are automatically filled in, and that Location_ID is the same in both forms
- In the Observation form, enter
  - Species = bogr2
  - Cover = 10
  - Height = 13
  - Observation = 1
  - Phenology = fl
- Use the right arrow on the bottom of the observation form to advance to a new record
- Enter two more records in the Observation table



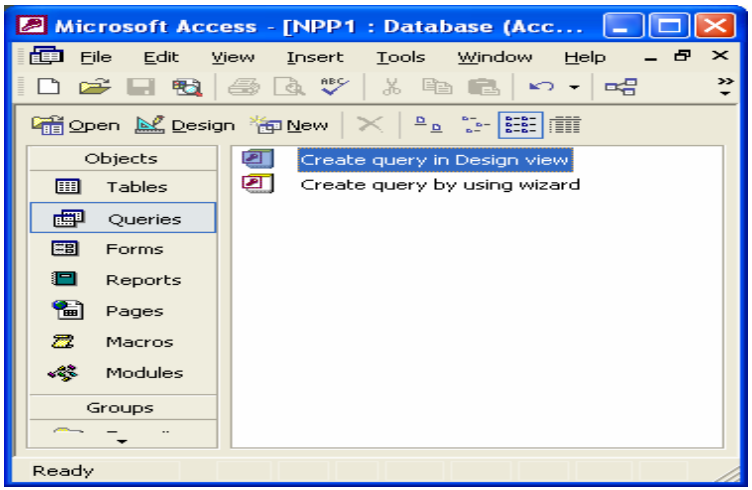
View the entered data

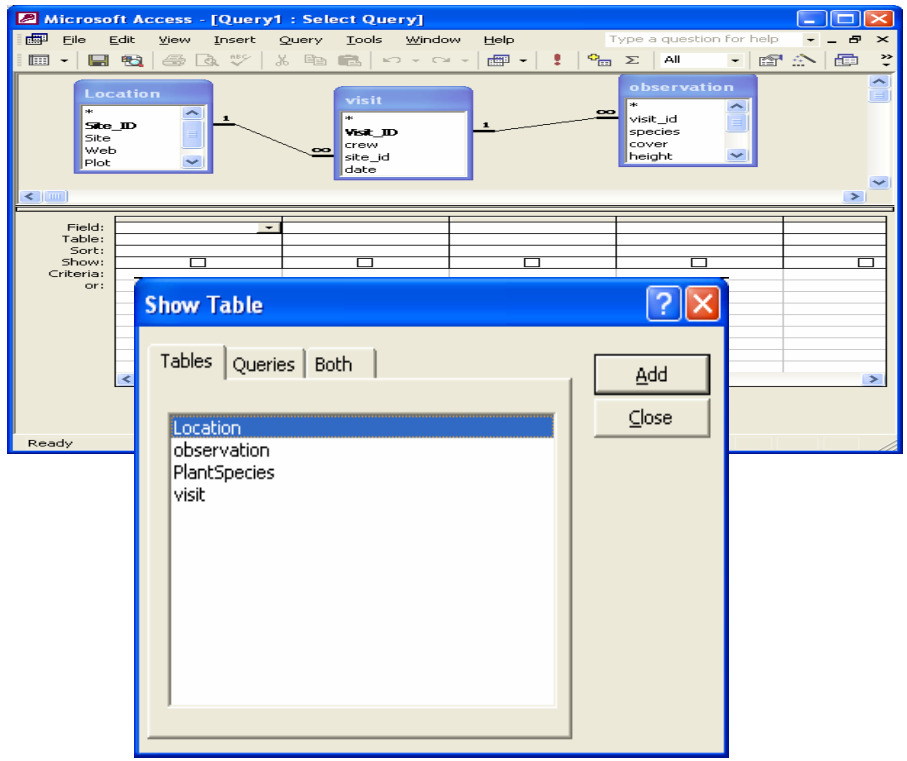




- Open the Location table and expand the table to show linked data by clicking on the '+'

Create a query to show all the data at once

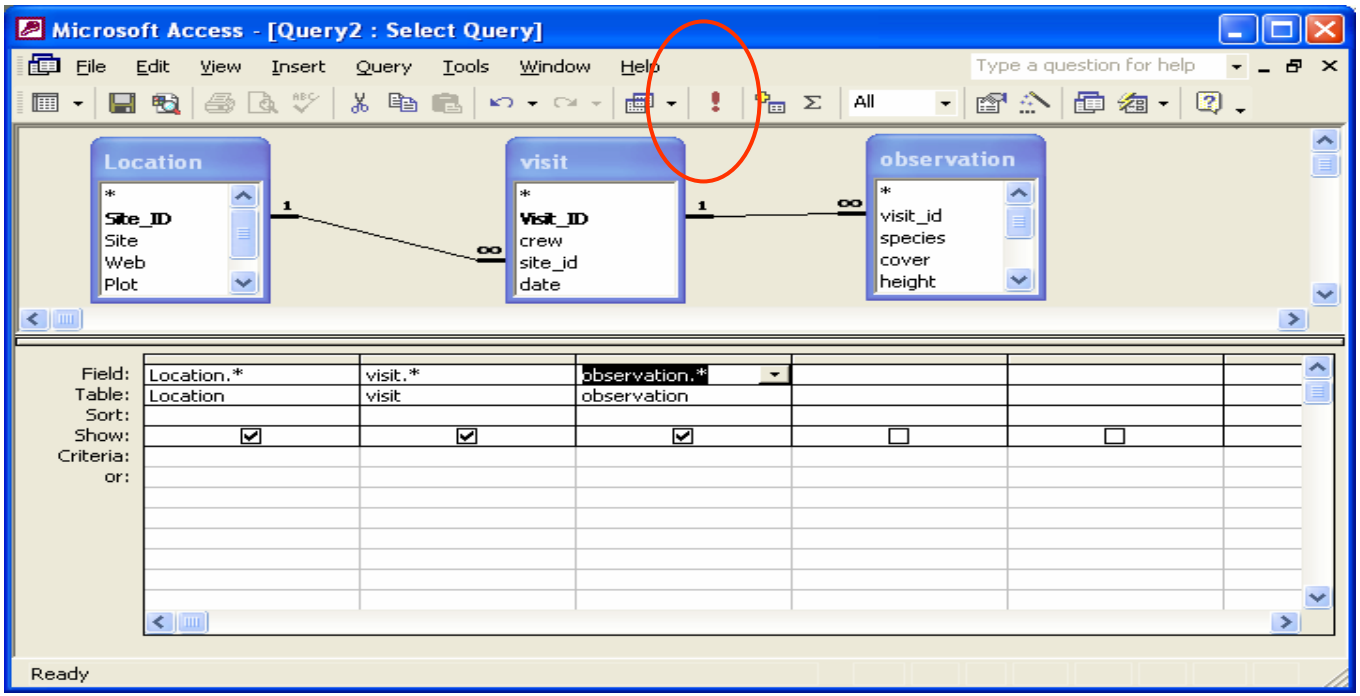




- Choose Query from the database objectst list
- Choose “Create query in Design View”

- Add the tables Location, Observation, and Visit to the query
- Close the ‘Show Table’ window

Define the query



- Use the drop-down boxes to make your window look like this
- Click on the '!' to run your query

Results of the query

Microsoft Access - [Query3 : Select Query]

File Edit View Insert Format Records Tools Window Help

Location.	Site	Web	Plot	Quad	visit.visit_id	crew	visit.site_i	date	observation.visit_	species	cover	height	observation	phenology	comments	observation_id
2	CM	1	N	1	2	karen	2	6/24/2005	2	boer4	1	23	1	fl	oryx track	1
2	CM	1	N	1	2	karen	2	6/24/2005	2	bogr2	1	12	2	fl		2
2	CM	1	N	1	2	karen	2	6/24/2005	2	asmim	3	12	16	fr		3
)Number)					AutoNumber)											

Record: 1 of 3

Datasheet View

- Now you have an Excel-like format that can be exported.