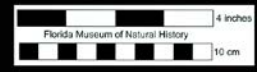
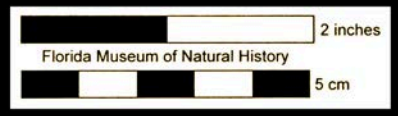




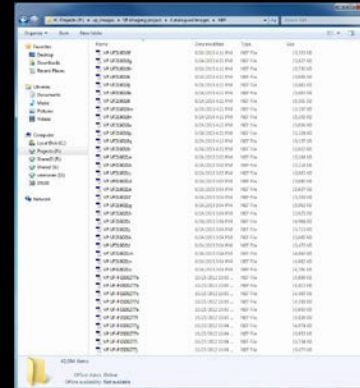
Workflow for imaging vertebrate fossils

Sean Moran Nov. 9, 2016



Outline

- Specimen selection
- Equipment
- Specimen staging and imaging
- Post-processing
- Image storage



Specimen selection



- Goal-dependent
 - E.g., focus on collections, taxon, skeletal element, locality, etc.
- Good exemplars
 - Driven by overarching goal
 - Mostly complete specimens
 - Representative of the collection as a whole



Lights from top left and bottom right

Camera with macro lens

Copy stand

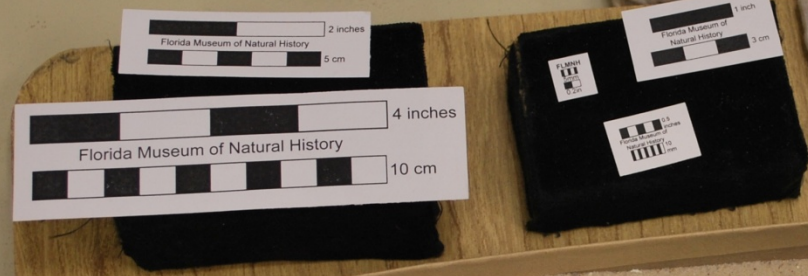
Clay for
positioning fossils



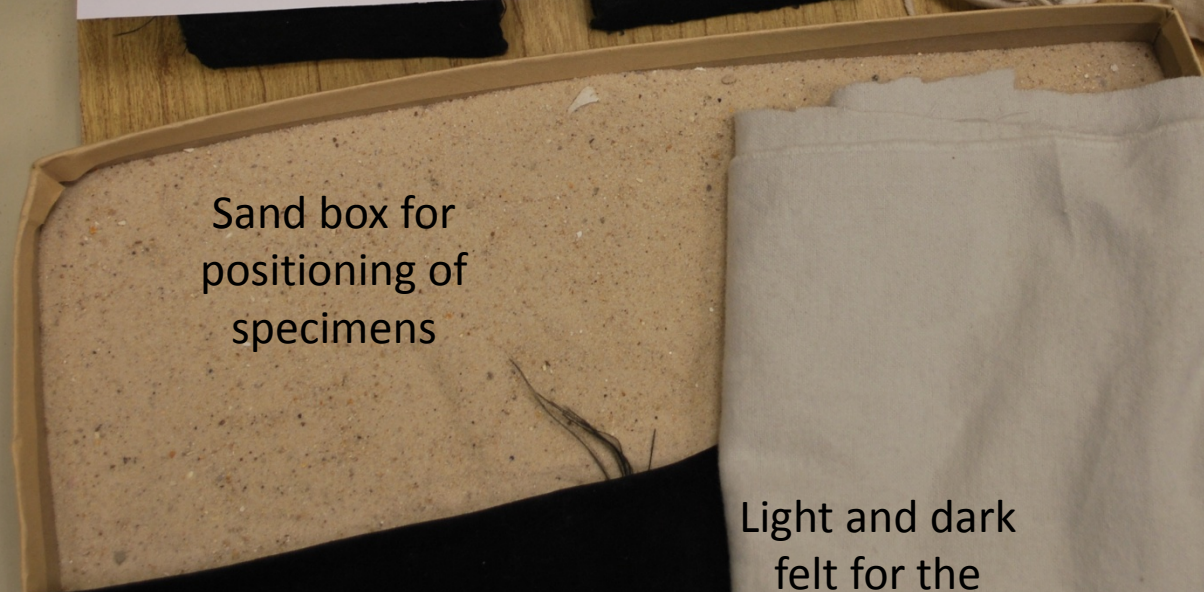
Sand bags for
positioning fossils



Scale bars
of varying
sizes



Sand box for
positioning of
specimens



Light and dark
felt for the
background



Equipment



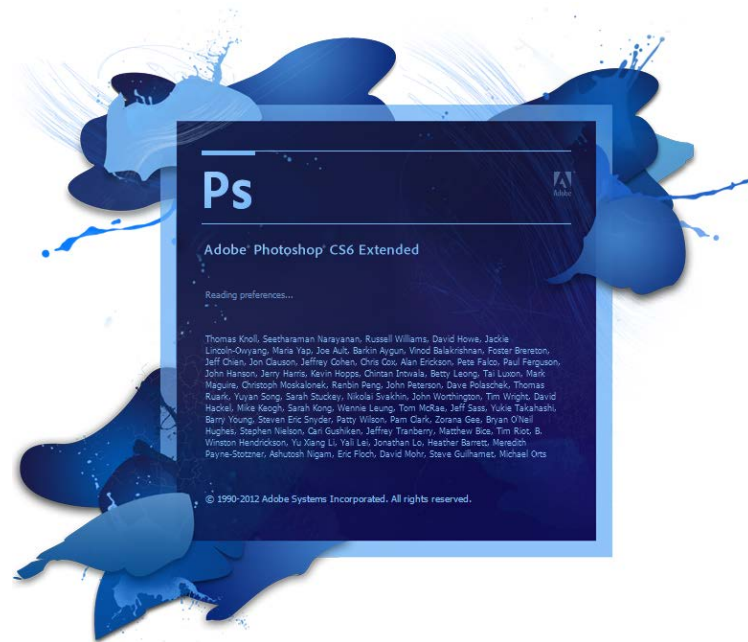
Nikon D5100



Nikkor 105mm f/2.8G IF-ED



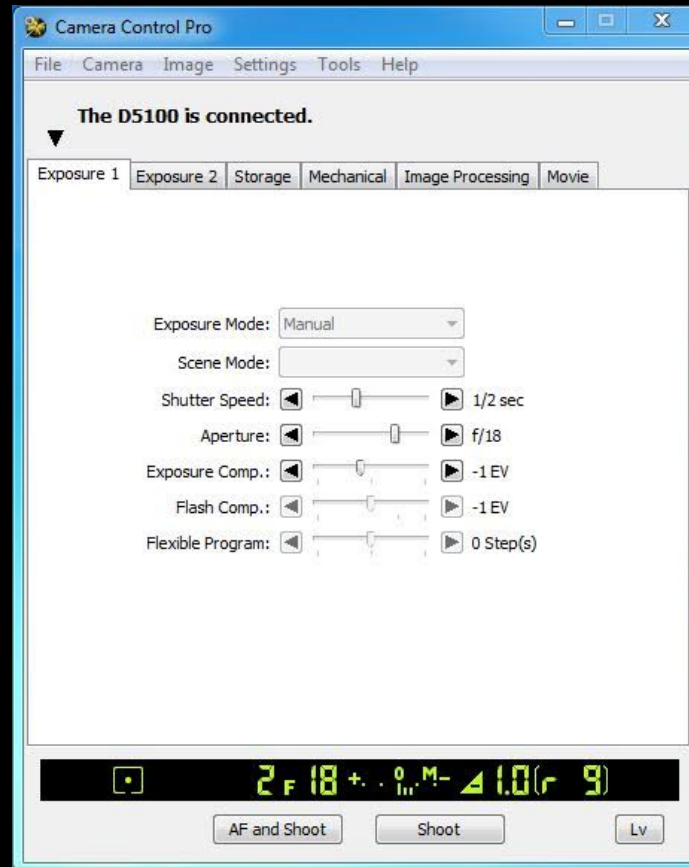
Nikkor 60 mm f/2.8G ED



Bowens Streamlite 330 Fluorescent Lights

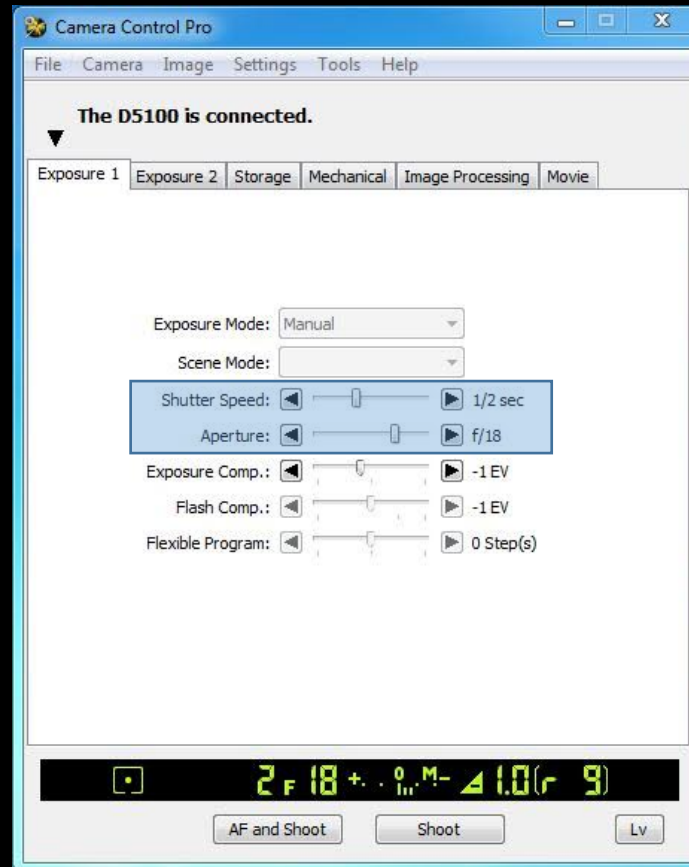
Specimen staging

- All important views
 - Dorsal, ventral, anterior, posterior, occlusal, medial, lateral, etc. (2-6 per specimen)
- Scale bar in line with focal plane
- Relatively clean felt background overlying sandbox



Specimen imaging

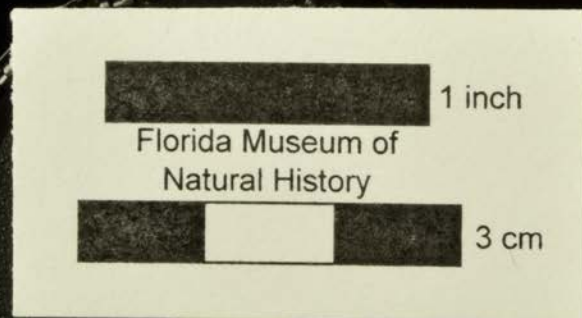
- 3 images per view with differential shadowing
- 1 of the 3 converted from .nef to .jpg
- Aperture prioritized
- Shutter speed changed to compensate for well-exposed image



Database

Date	Id	Photographer_n	Collecti	Original_ca	New_catalog	Ne	Class	Genus	Species	New	Nature_of_Specimen	View	In	RAW_Image_file_n	Unic	JPEG	High_Res_JPG	Low_Res_JPG	Web_Folder	Web_File_Name	For_Online	Comments
10/24/2012	1921	Sean Moran	UF	271829	UF271829	y	Mammalia	Tapirus	haysii		lacrima, right	right lateral	a	VP UF271829a.nef	y	VP UF271829a.jpg	VP UF271829a_HR.jpg	VP UF271829a_LR.jpg	Y	VP_UF271829lat.jpg	Y	
10/24/2012	1922	Sean Moran	UF	271829	UF271829		Mammalia	Tapirus	haysii		lacrima, right	right lateral	b	VP UF271829b.nef								
10/24/2012	1923	Sean Moran	UF	271829	UF271829		Mammalia	Tapirus	haysii		lacrima, right	right lateral	c	VP UF271829c.nef								
10/30/2012	1924	Sean Moran	UF	3209	UF003209	y	Aves	Bathoceleus	hyphalus	Y	coracoid, right	posterior	a	VP UF003209a.nef	y	VP UF003209a.jpg	VP UF003209a_HR.jpg	VP UF003209a_LR.jpg	Y	VP_UF003209post.jpg	Y	
10/30/2012	1925	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	posterior	b	VP UF003209b.nef								
10/30/2012	1926	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	posterior	c	VP UF003209c.nef								
10/30/2012	1927	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	medial	d	VP UF003209d.nef								
10/30/2012	1928	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	medial	e	VP UF003209e.nef								
10/30/2012	1929	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	medial	f	VP UF003209f.nef	y	VP UF003209f.jpg	VP UF003209f_HR.jpg	VP UF003209f_LR.jpg	Y	VP_UF003209med.jpg	Y	
10/30/2012	1930	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	anterior	g	VP UF003209g.nef	y	VP UF003209g.jpg	VP UF003209g_HR.jpg	VP UF003209g_LR.jpg	Y	VP_UF003209ant.jpg	Y	
10/30/2012	1931	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	anterior	h	VP UF003209h.nef								
10/30/2012	1932	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	anterior	i	VP UF003209i.nef								
10/30/2012	1933	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	right lateral	j	VP UF003209j.nef								
10/30/2012	1934	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	right lateral	k	VP UF003209k.nef								
10/30/2012	1935	Sean Moran	UF	3209	UF003209		Aves	Bathoceleus	hyphalus		coracoid, right	right lateral	l	VP UF003209l.nef	y	VP UF003209l.jpg	VP UF003209l_HR.jpg	VP UF003209l_LR.jpg	Y	VP_UF003209lat.jpg	Y	
10/30/2012	1936	Sean Moran	UF	3210	UF003210	y	Aves	Corvus	wetmorei	Y	humerus, left distal	medial	a	VP UF003210a.nef								
10/30/2012	1937	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	medial	b	VP UF003210b.nef	y	VP UF003210b.jpg	VP UF003210b_HR.jpg	VP UF003210b_LR.jpg	Y	VP_UF003210med.jpg	Y	
10/30/2012	1938	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	medial	c	VP UF003210c.nef								
10/30/2012	1939	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	posterior	d	VP UF003210d.nef								
10/30/2012	1940	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	posterior	e	VP UF003210e.nef								
10/30/2012	1941	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	posterior	f	VP UF003210f.nef	y	VP UF003210f.jpg	VP UF003210f_HR.jpg	VP UF003210f_LR.jpg	Y	VP_UF003210post.jpg	Y	
10/30/2012	1942	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	left lateral	g	VP UF003210g.nef								
10/30/2012	1943	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	left lateral	h	VP UF003210h.nef								
10/30/2012	1944	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	left lateral	i	VP UF003210i.nef	y	VP UF003210i.jpg	VP UF003210i_HR.jpg	VP UF003210i_LR.jpg	Y	VP_UF003210lat.jpg	Y	
10/30/2012	1945	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	anterior	j	VP UF003210j.nef	y	VP UF003210j.jpg	VP UF003210j_HR.jpg	VP UF003210j_LR.jpg	Y	VP_UF003210ant.jpg	Y	
10/30/2012	1946	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	anterior	k	VP UF003210k.nef								
10/30/2012	1947	Sean Moran	UF	3210	UF003210		Aves	Corvus	wetmorei		humerus, left distal	anterior	l	VP UF003210l.nef								
10/30/2012	1948	Sean Moran	UF	11005	UF011005		Mammalia	Tapirus	webbi		P2, right lower	right lateral	an	VP UF011005an.nef	y							
10/30/2012	1949	Sean Moran	UF	11005	UF011005		Mammalia	Tapirus	webbi		P2, right lower	right lateral	ao	VP UF011005ao.nef								
10/30/2012	1950	Sean Moran	UF	11005	UF011005	y	Mammalia	Tapirus	webbi		P2, right lower	right lateral	ap	VP UF011005ap.nef								
10/30/2012	1951	Sean Moran	UF	106594	UF106594	y	Aves	Columbina	prattae	Y	tarsometatarsus, right distal	posterior	a	VP UF106594a.nef	y	VP UF106594a.jpg	VP UF106594a_HR.jpg	VP UF106594a_LR.jpg	Y	VP_UF106594post.jpg	Y	
10/30/2012	1952	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	posterior	b	VP UF106594b.nef								
10/30/2012	1953	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	posterior	c	VP UF106594c.nef								
10/30/2012	1954	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	right lateral	d	VP UF106594d.nef								
10/30/2012	1955	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	right lateral	e	VP UF106594e.nef								
10/30/2012	1956	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	right lateral	f	VP UF106594f.nef	y	VP UF106594f.jpg	VP UF106594f_HR.jpg	VP UF106594f_LR.jpg	Y	VP_UF106594lat.jpg	Y	
10/30/2012	1957	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	anterior	g	VP UF106594g.nef	y	VP UF106594g.jpg	VP UF106594g_HR.jpg	VP UF106594g_LR.jpg	Y	VP_UF106594ant.jpg	Y	
10/30/2012	1958	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	anterior	h	VP UF106594h.nef								
10/30/2012	1959	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	anterior	i	VP UF106594i.nef								
10/30/2012	1960	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	medial	j	VP UF106594j.nef								
10/30/2012	1961	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	medial	k	VP UF106594k.nef								
10/30/2012	1962	Sean Moran	UF	106594	UF106594		Aves	Columbina	prattae		tarsometatarsus, right distal	medial	l	VP UF106594l.nef	y	VP UF106594l.jpg	VP UF106594l_HR.jpg	VP UF106594l_LR.jpg	Y	VP_UF106594med.jpg	Y	
10/30/2012	1963	Sean Moran	UF-PB	428	UF-PB00428	y	Aves	Protocitta	dixie	Y	humerus, left	left lateral	a	VP UF-PB00428a.nef	y	VP UF-PB00428a.jpg	VP UF-PB00428a_HR.jpg	VP UF-PB00428a_LR.jp	Y	VP_UF-PB00428lat.jpg	Y	
10/30/2012	1964	Sean Moran	UF-PB	428	UF-PB00428		Aves	Protocitta	dixie		humerus, left	left lateral	b	VP UF-PB00428b.nef								
10/30/2012	1965	Sean Moran	UF-PB	428	UF-PB00428		Aves	Protocitta	dixie		humerus, left	left lateral	c	VP UF-PB00428c.nef								
10/30/2012	1966	Sean Moran	UF-PB	428	UF-PB00428		Aves	Protocitta	dixie		humerus, left	anterior	d	VP UF-PB00428d.nef								
10/30/2012	1967	Sean Moran	UF-PB	428	UF-PB00428		Aves	Protocitta	dixie		humerus, left	anterior	e	VP UF-PB00428e.nef								

Post-processing





Navigator



25%

History

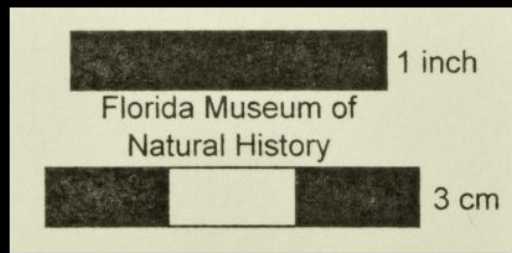
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- Open
- Crop
- Quick Selection
- Quick Selection
- Quick Selection
- Rectangular Marquee

Layers

Kind: Normal Opacity: 100%

Lock: Fill: 100%

Background



- VP UF271830b.JPG
- Open
- Crop
- Quick Selection
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- Quick Selection
- Rectangular Marquee
- Select Inverse
- Fill
- Deselect

Kind: Normal Opacity: 100%

Lock: Fill: 100%

Background



- VP UF271830b.JPG
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- Quick Selection
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- Quick Selection
- Rectangular Marquee
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- Rectangular Marquee
- Move
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- Move
- Deselect

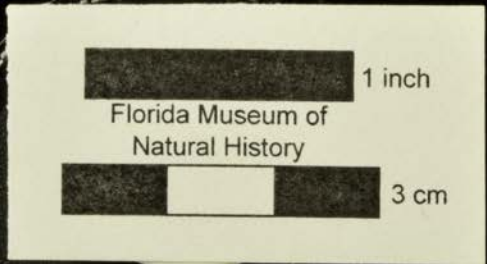
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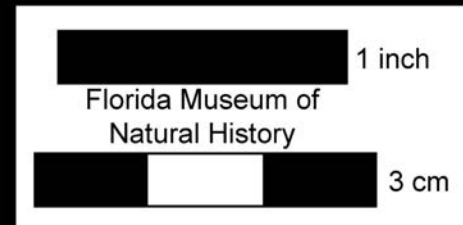
Background



UF 271830

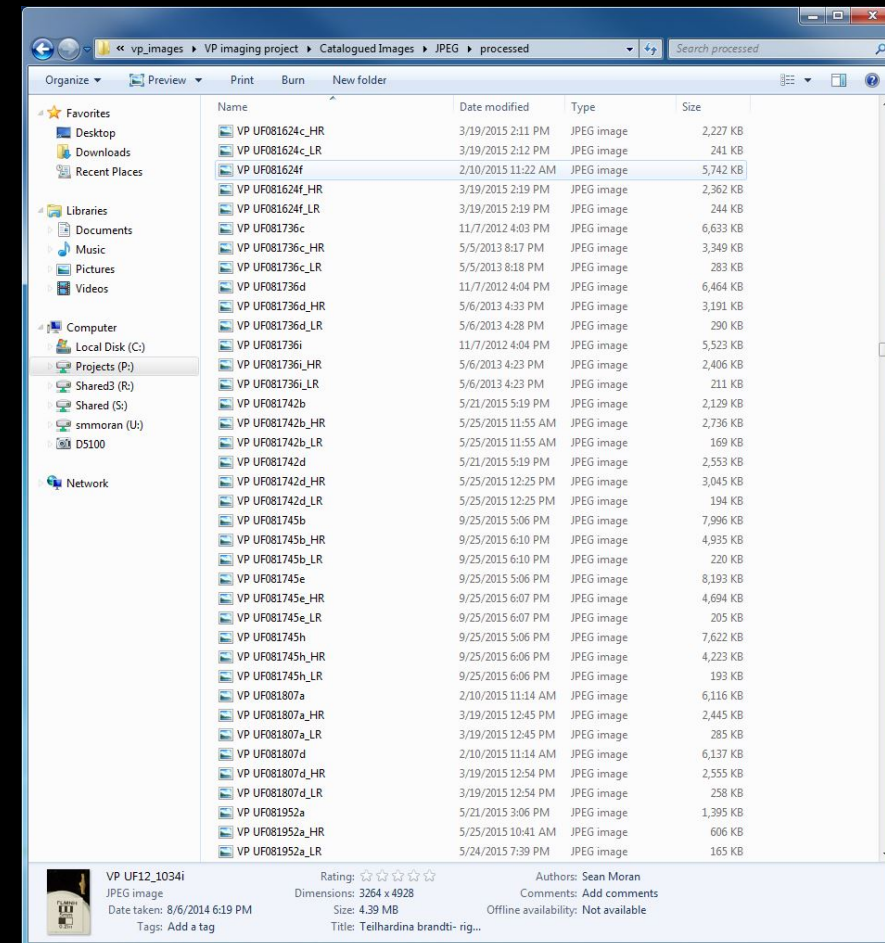
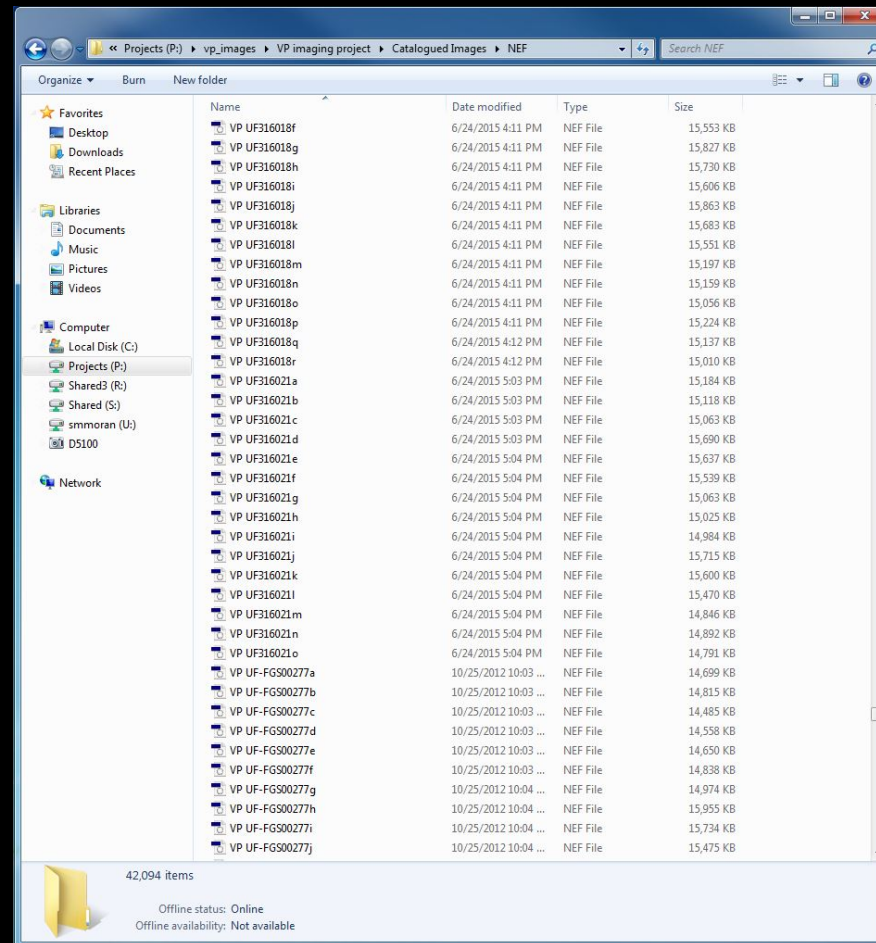


UF 271830

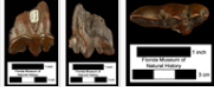


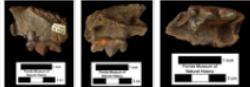








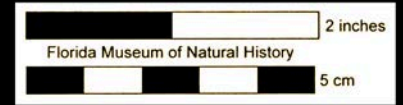
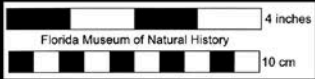
Data Storage

- .nef, .jpg
- edited (high and low resolution) and unedited
- files stored on the P:// drive



flmnh.ufl.edu/vertpaleo-search/search

Images	Database Source	Catalog Number	Class	Order	Family	Genus	Species	Specimen Type	Site	Epoch	Formation
	UF/TRO	11	Mammalia	Carnivora	Felidae	<i>Smilodon</i>	<i>fatalis</i>		Waccasassa River 6	Pleistocene, Late	
	UF/TRO	12	Mammalia	Carnivora	Felidae	<i>Smilodon</i>	<i>fatalis</i>		Waccasassa River 2	Pleistocene, Late	
	UF/TRO	13	Mammalia	Carnivora	Felidae	<i>Smilodon</i>	<i>fatalis</i>		Waccasassa River 2	Pleistocene, Late	
	UF/TRO	14	Mammalia	Carnivora	Felidae	<i>Panthera</i>	<i>onca</i>		Waccasassa River 6	Pleistocene, Late	
 	UF/TRO	15	Mammalia	Carnivora	Ursidae	<i>Arctodus</i>	<i>pristinus</i>		Haile 16A	Pleistocene, Early	
 	UF/TRO	16	Mammalia	Carnivora	Canidae	<i>Canis</i>	<i>dirus</i>		Devil's Den	Pleistocene, Late	
 	UF/TRO	17	Mammalia	Carnivora	Canidae	<i>Urocyon</i>	<i>cinereoargenteus</i>		Devil's Den	Pleistocene, Late	



Thank you! Questions?

