Can we trust research results from UiO scientists ?

Taking care of research material at the Natural History Museum

Would you accept an accounting report without receipts?

Should we accept research results without receipts??

Hans Arne Nakrem, Natural History Museum, Univ Oslo (27 October 2022)

Conclusions

The conodont fauna recorded from the Slemmestad

Repository. – Figured material is deposited in the palaeontological collection of the Natural History Museum, University of Oslo (collection acronym PMO).

1

VG SPORTEN VG LIVE TV-GUIDE VG+ TIPS OSS

Her står Brasils nasjonalmuseum i brann

Nasjonalmuseet i Rio totalskadet i brann

Nasjonalmuseet i Brasil gikk søndag opp i flammer. Det er ikke meldt om skadde i brannen. – En tragisk dag for Brasil, sier president Michel Temer.

2

Universitetsbiblioteket

Implementasjon av forskningsdataarkiv ved UiO

Prosjektets overordnede mål er å implementere DataverseNO på UiO, med tilhørende forskerstøtte- og kurateringsfunksjoner, samt å gå inn som medlem i konsortiet. Hensikten er å få på plass et konkret tilbud for FAIR og åpen arkivering av data for forskere og studenter ved UiO med kuratering og langtidsperspektiv. Samtidig skal vi også få på plass gode forskerstøttetjenester for kuratering og arkivering også i andre relevante arkiv.

Data, yes, but only digital data?

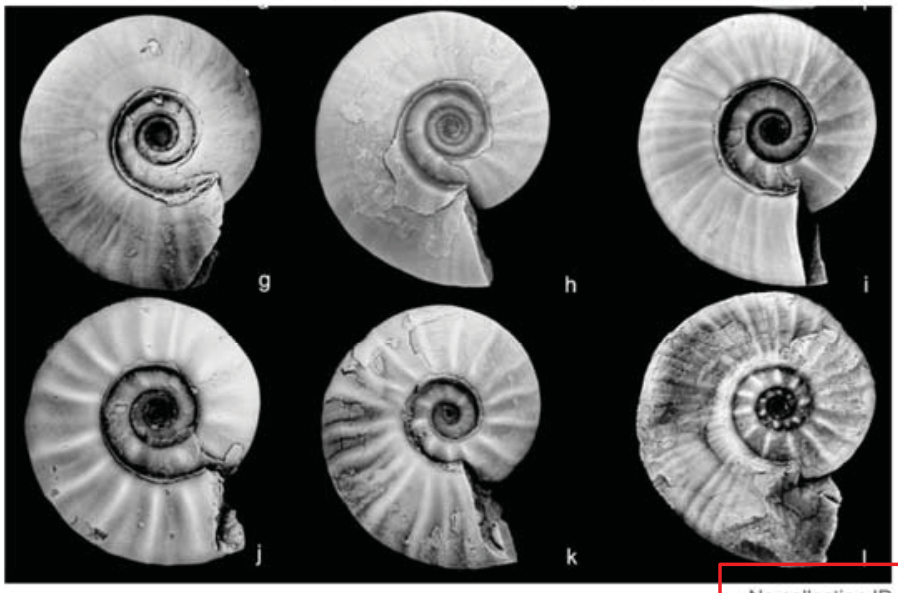
DataverseNO

3

An example from paleontology – research using fossils

Do you agree on the identification of these fossils ?

Polar Research 27 2008 292–297 © 2008 The Author Intraspecific variation of *Svalbardiceras spitzbergensis* (Frebold)



No collection ID

Fig. 3 *Svalbardiceras spitzbergensis* (Frebold). Side views of 12 specimens from a single nodule layer [Early Triassic, Spathian, Keyserlingites subrobustus Zone, Vikinghøgda Formation (Vendomdalen Member ...iting the continuous morphological variation. (a, c–g, l) Specimens from Stensiöfjellet, central Spitsbergen; (b, h, i) specimens from Wallenbe... central Spitsbergen; (j) specimen from Roslagenfjellet, eastern Spitsbergen; (k) specimen from Trehøgdene, central Spitsbergen. Magnification: (a) 1.3 times natural size; (c) and (l) 0.8 times natural size; (j) 1.4 times natural size. All the other specimens are shown at their natural sizes. Note the variation represented at the two extremes by (a) and (l).

4

Another example from paleontology

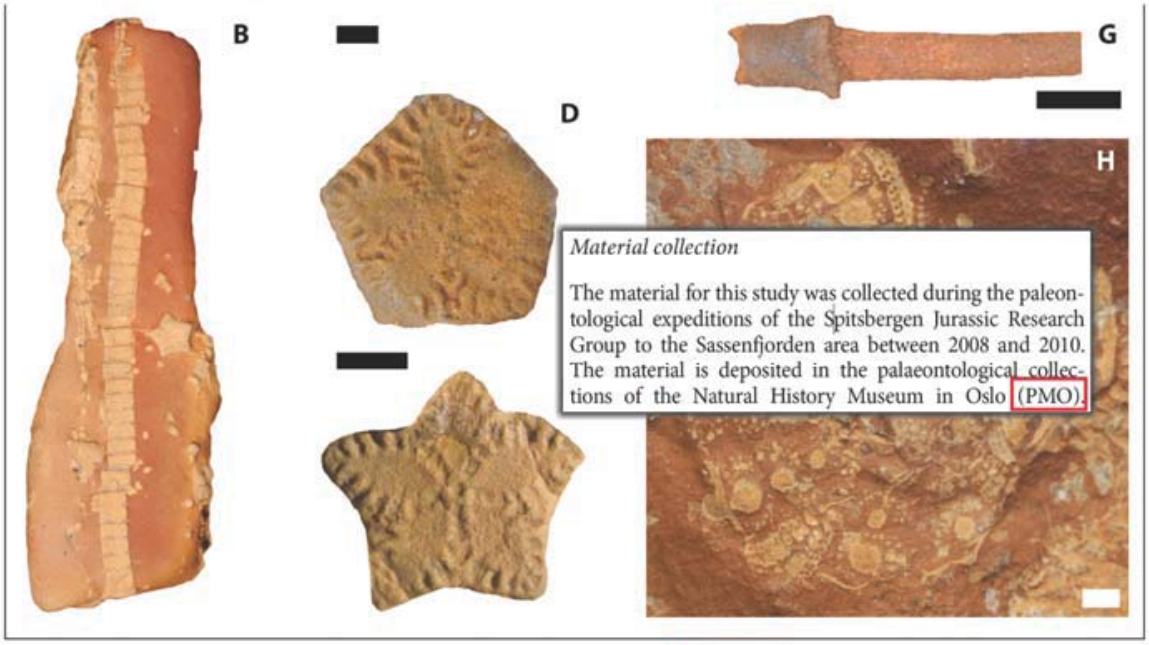


Figure 3. The Janusfjellet Lagerstätte allochthonous fauna. A-E: Chariocrinus *sp. A. PMO 217.968. Partially articulated arms. B. PMO 217.906. Lateral view of a pluricolumnal with some partial cirri. B is to scale with A. C. PMO 217.903. Accumulation of disarticulated ossicles typical of the Janusfjellet Lagertätte. D. PMO 217.958. Columnal in distal (aboral) view. E. PMO 217.914. Columnal in distal view. E is to scale with D. F-H:* Hemipedina *sp. F. PMO 217.997. Apical view of the oral region of a partial test. G. PMO 217.905. Details of spine. H. PMO 218.011b. Apical view of test. Scale bars are 1 mm across, except in C where it is 10 mm across.*

5

Another example from paleontology

NORWEGIAN JOURNAL OF GEOLOGY
https://dx.doi.org/10.17850/njg102-1-04
GEOLOGICAL SOCIETY OF NORWAY

Palynomorphs and particulate organic matter in Late Pleistocene–Holocene deep-water sediments in the Nansen Basin (Arctic Ocean): From sources to sink

Morten Smelror[1], Trond Slagstad[1] and Håvard Gautneb[1]
[1] Geological Survey of Norway, NO-7491 Trondheim, Norway
E-mail corresponding author (Morten Smelror): morten.smelror@ngu

The point is:
Physical objects (rocks, fossils, plants, animals, blood samples, tissue etc etc) must for the unforeseen future be stored in an open, accessible collection, preferably in a governmental **museum**.

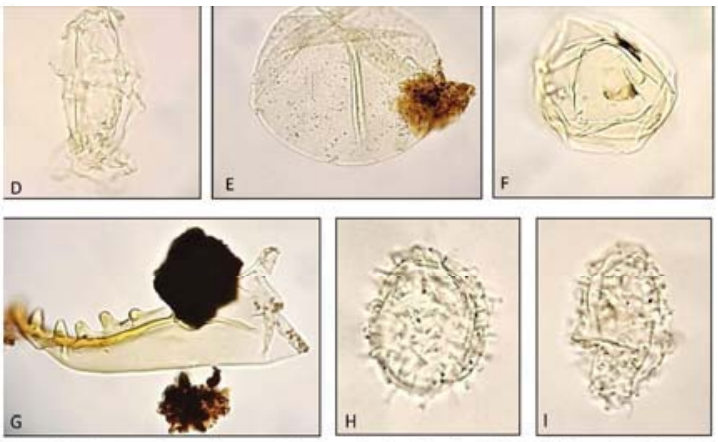


Figure 4. Quaternary palynomorphs recovered from samples St. 4, Su. 4 and St. 5 in the Nansen Basin. Repository NTNU Vitenskapsmuseet, Collection no NTNU–VM–GE 10 001–10 007. (A) Protoperidinium sp., (B) Nematosphaeropsis labyrinthus, (C) Halodinium sp, (D) Spiniferites elongatus, (E) Gen. et sp. indet, (F) Leiosphaeridia sp. (reworked?), (G) Scolecodont, (H) Operculodinium centrocarpum, (I) Operculodinium centrocarpum (short processes). Magnification of all specimens: 500X.

6

We must start with the students

Or even better: the supervisors

FIG. 5.1.

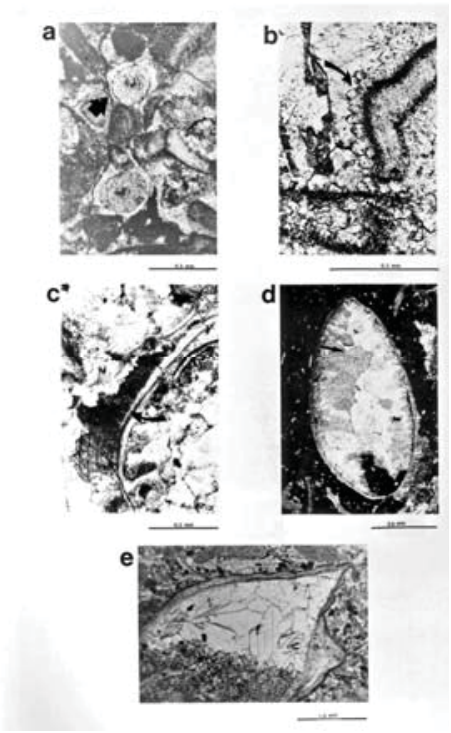
5.1.a. Epitaksial sement på et krinoidefragment.

5.1.b. Fibrøs sement består av små krystaller som vokser vinkelrett på kornoverflaten.

5.1.c. Radiaksial fibrøs sement med typiske tvillingstriper. Pilen peker på feltet hvor en kan se rester etter fibrøs sement.

5.1.d. Drusig sement: Små krystaller dannes ut fra skalliveggen. Krystallene øker ut mot de sentrale deler. I sentrum av hulromsinnfyllingen finnes blokkformet sement.

5.1.e. Blokkformet sement i forskjellige størrelser i en geopetalstruktur.



No indication on the whereabouts of these samples (thin sections). Cannot be scrutinized, can we trust this MSc thesis?

7

We must start with the students

Or even better: the supervisors

FIG. 5.1.

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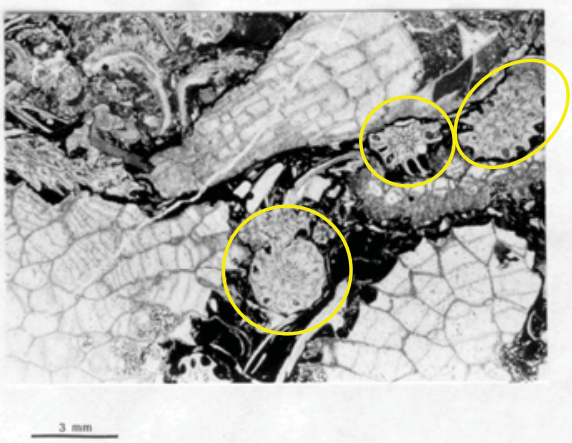
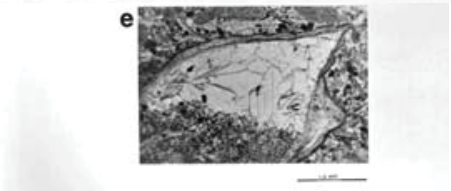


Fig. 3.9 Figuren viser at korallfragmentene er lite slitt, på tross av de generelt er transportert. De ytre korallcalyx er ikke sementert.



No indication on the whereabouts of these samples (thin sections). Cannot be scrutinized, can we trust this MSc thesis?

8

We must start with the supervisors and the students

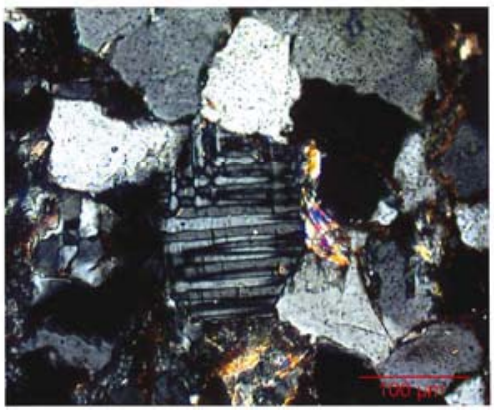


Figure 6.4. Microphotograph of a microcline (perthite), quarts grains and some calcite cement. Note grain-supported fabric. From the Stubdal Formation, quarry near Utvika (locality RG30) (in cross-polarized light).

Thin sections costs > 500 NOK – why not take care of them, and make them available for re-study?

Another Blindern MSc thesis:
No info on material storage

9

We must start with the students

PLANSJE 1

Fig. 1,2,5-10 *Pteropathodus amorphognathoides* WALLISER
1. S-element, ytterside, 75X, PMO 111.199/27
2. S-element, innerside, 75x PMO 111.199/27
5. M-element, ytterside, 75x PMO 111.199/26
6. M-element, innerside, 75x PMO 111.199/26
7. Pa-element, 55x PMO 111.202/1
8. Pa-element, 55x PMO 111.199/6
9. Pb-element, 75x PMO 111.199/11
10. Pa-element, juvenil, 70x PMO 111.201/6

Fig. 3,4 *Pteropathodus celloni* (WALLISER)
3. Pa-element, oralside, 40x PMO 111.196/1
4. Pa-element, lateralt, 40x PMO 111.196/1

Fig. 11 *Pteropathodus pennatus pennatus* (WALLISER)
11. Pa-element, oralside,40x PMO 111.199/2

Fig. 12 *Pteropathodus pennatus pennatus* (WALLISER)
12. Pa-element, oralside,80x PMO 111.195/1

Fig. 13,14 *Johnognathus* sp.
13. 40x PMO 111.201/10
14. 40x PMO 111.201/10

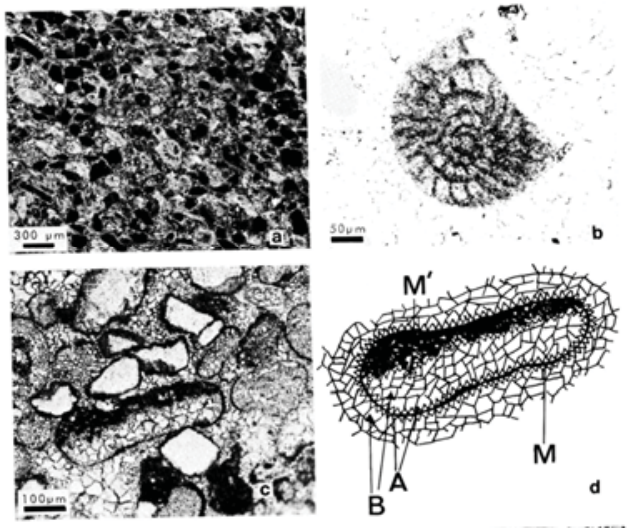
Fig. 15. *Johnognathus huddlei* (MASHKOVA)
15. 40x PMO 111.192/3

Fig. 16, 17. *Aulacognathus bullatus* (NICOLL & REXROAD)
16. Pa-element, 35x PMO 111.192/1
17. Pa-element, juvenil 40x PMO 111.205/1

10

Are UiO researchers any better ?

Geol. Mag. Vol. 118, 1981. Plate 1, facing page 288.



Article e01354; page 10

detailed variable sets. Being common is an advantage when there is no size difference (the term common.00 in Table 2), but being rare is an advantage as long as there ce (the term common.01). Specifically, ryozoan that represents only 1% of the in a battle against a given opponent is = 1.83 times higher than one that rep- e community, given that there is a dif- size between them. Cheilostomes with phology are generally weaker over- rs than those with anascan morphol- hile a cheilostome with ascophoran re likely to lose a battle (Table 1), our overgrowth outcomes for them is com- nteraction of the state of being asco- e presence of vicarious avicularia arious avicularia; Table 2). Ascophor- r chance of winning over anascans if arious avicularia, than if they do not It also appears that cheilostomes with are at an overgrowth advantage, have such spines but no "small" avicu- ia types other than large vicarious avic- ore likely to win over those possessing such avicularia (Table 2, Fig. 3). Of the pikes on their ovicells (outgrowths har- , those with avicularia are at a clear 2, Fig. 3). This best model (Table 2) utcome correctly with an CVP proba- ilcox test $P = 0.00056$ compared with While there is naturally greater model han in the models from the coarse vari- st because we cannot search through austively, we note that the greatest ainty is associated with whether com- nteract with size or interzooidal avicu- should be a stand-alone variable

Ecological Monographs Vol. 89, No. 2

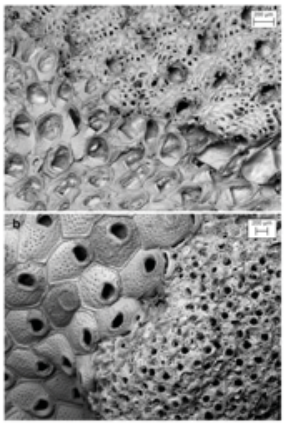


Fig. 2. Winning traits. Scanning electron micrographs of reciprocal overgrowth observed in contemporary material from Cook Strait, New Zealand. (a) *Exochella conjuncta* (top right colony, ascophoran, "clothed") vs. *Mollia amsona* (bottom left colony, anascan, "semi-naked"; edm3709); (b) *Macropora levinseni* (left colony, single-layered growth) vs. *Oshimoia* sp. (right colony, multilayered growth; edm3705).

No info on material storage

11

Are UiO researchers any better ?

GFF volume 124 (2002), pp. 27–33. *Article*

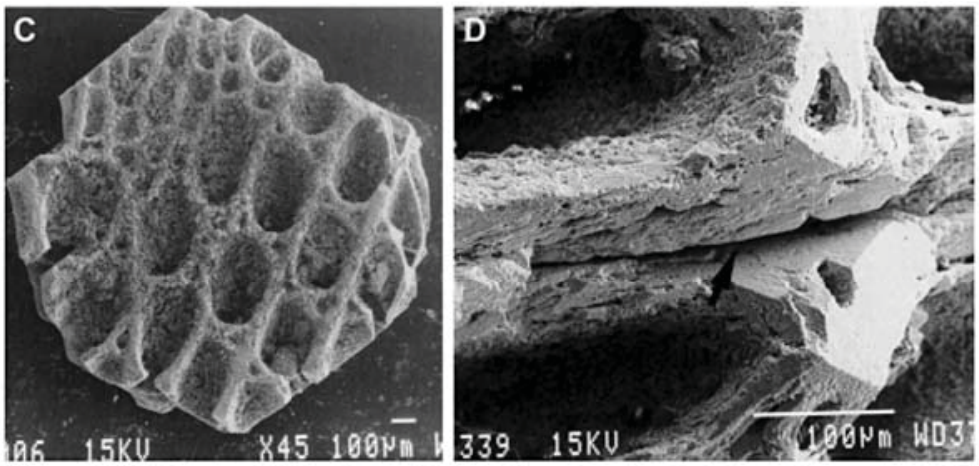


Fig. 2. Phaenopora lindstroemi ULRICH mineralized in galena. **A**. A typical specimen, showing the two small mesopores between each zooecium. From Stenkyrkehuk (beach section S. of the lighthouse). **B**. Fragment showing the monocrystalline nature of the material. From Storbrut (section below reef, just above lowest bentonite bed). **C**. Fragment from the margin of a colony, showing numerous mesopores, and "foamy" mineralization. From Storbrut. **D**. Enlargement of B, showing unmineralized fissures corresponding to the parts richest in organic matrix in the bryozoans. Specimens are from the Lower Visby Marl, close to the lowest of three bentonite beds. Scale bars give the magnification.

No collection numbers in the article

All the material was collected by the author, and belongs to the Department of Palaeozoology of the Swedish Museum of Natural History, Stockholm.

12

We must start with the students
Experience and advice from “my” museum

13

Taking care of students’ material

14

Taking care of students' material

15

Taking care of students' material

16

Must also teach journal editors

What data do journals require researchers to archive?

Surveying the data archival requirements of 100 top journals in ecology, evolution, behavior and systematics, the authors found that scientific journal data policies rarely address what to do with physical specimens once the research is published.

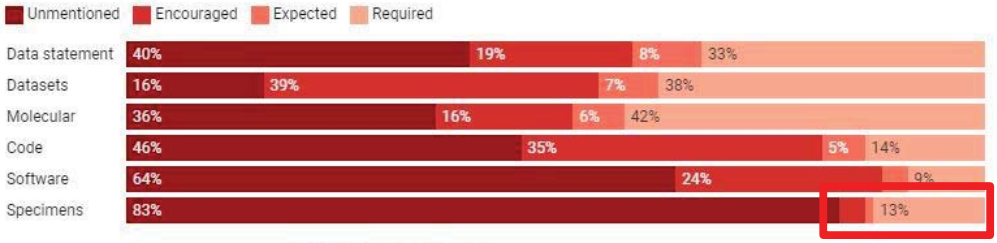


Chart: The Conversation, CC-BY-ND • Source: Colela et al 2020 • Get the data

More than half of the top 100 journals in ecology, evolution, behavior and systematics mention or require the permanent archival of DNA sequences. But fewer than one-fifth have similar requirements for specimens. If specimens are preserved, DNA sequences can always be regenerated.

17

Must also teach journal editors

NORWEGIAN JOURNAL OF GEOLOGY (NJG)

Referee's name:
Do you wish to remain anonymous? NO (delete as appropriate)

Short instructions to reviewers

Focus on the scientific contents and structure of the paper. Note if key references are included and/or erroneous references are made, but a thorough control of the completeness and style of references is not needed.

Comments may be inserted directly in the manuscript PDF or at the bottom of this form, using line/figure numbers etc. as reference.

Pay particular attention to sample/specimen documentation, repeatability and availability to further scrutiny, the cornerstones of any solid scientific work. Refer to points 19–22 below.

Evaluation form for the Norwegian Journal of Geology

Name of author (s):

Title:

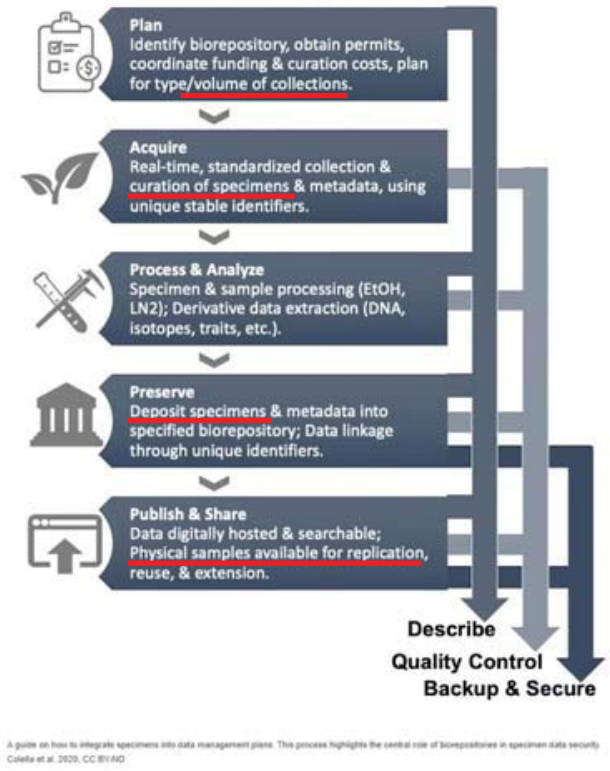
1. Is the subject within the scie
2. Is the title informative and c

19.	If applicable, has taxonomic work been done properly? Is nomenclature consistent with the rules of the relevant nomenclatorial code?	N/A
20.	If applicable, is illustrated / analysed fossil material numbered and kept in a public collection (museum) and available for future scrutiny.	NO
21.	If applicable, are thin-section, outcrop etc. photos identified with sample numbers and geographical coordinates.	YES
22.	Are all data presented?	YES
23	Does the manuscript contain data that should be included as Electronic supplements for easy download?	NO

18

Conducting and completing a research project

Storage of material must be included in NRC applications



A responsible university …..

Universitetsbiblioteket

Implementasjon av forskningsdataarkiv ved UiO

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DataverseNO

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10/24/22, 2:11 PM Implementasjon av forskningsdataarkiv ved UiO - Universitetsbiblioteket

Universitetsbiblioteket

Implementasjon av forskningsdataarkiv ved UiO

Pr
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KRONIKK // FYSISKE OG DIGITALE DATA

VICTORIA SJØHOLT ENGELSCHIØN

STIPENDIAT I PALEONTOLOGI VED NATURHISTORISK MUSEUM I OSLO

Hvorfor fysiske data aldri kan digitaliseres fullstendig

Digitale data vil aldri kunne erstatte et fysisk objekt.
Å sørge for at Norge tar vare på de fysiske dataene sine må være del av en nasjonal satsning, med museene i lederrollen.

10 MUSEUMSNYTT 1/2019

21

A responsible university …..

10/24/22, 2:11 PM Implementasjon av forskningsdataarkiv ved UiO - Universitetsbiblioteket

Universitetsbiblioteket

Implementasjon av forskningsdat

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KRONIKK // FYSISKE OG DIGITALE DATA

VICTORIA SJØHOLT ENGELSCHIØN

STIPENDIAT I PALEONTOLOGI VED NATURHISTORISK MUSEUM I OSLO

Hvorfor fy
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Å sørge for at Norge tar vare på de fysiske dataene sine må være del av en nasjonal satsning, med museene i lederrollen.

10 MUSEUMSNYTT 1/2019

And we do not know how our collections, our specimens, will be used in the **future**

22

A quick collection demo

https://samlingsportal.nhm.uio.no/museum/nhm