

Occhio alle penne!

A Crowdsourcing Collection Digitization Experiment

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Crowdsourcing and Natural History Museums

The digitization of historical collections is an essential step in fulfilling a Natural History Museum mission of the 21st century...



Busycon contrarium (Conrad, 1840) : Melongenidae : Gastropoda : Mollusca

Catalog Number:	USNM 804173
Scientific Name:	Busycon contrarium (Conrad, 1840)
Identified By:	W.D.J.; J.F.N.
Classification:	Animalia, Mollusca, Gastropoda, Melongenidae
Common Name:	Gastropods
Collection Name:	MMS Collections; Central Gulf Platform Study; CGPS
Object Count:	1
Preparation:	Dry; Alcohol (Ethanol)
Station Number:	10S
Collector(s):	Southwest Research Institute For BLM/ MMS
Date Collected:	25 Aug 1978
Collection Method:	Trawl - Otter, 30 ft
Ocean:	North Atlantic Ocean
Sea/Gulf:	Gulf of Mexico
Country:	United States
Province/State:	Louisiana
Precise Locality:	South Timbalier Lease Area, Off Louisiana
Centroid Latitude:	28.8314
Centroid Longitude:	-90.3883
Expedition Name:	CGPS
Field Number(s):	2/10S-N0500
Accession Number:	333929
Record Last Modified:	06 Feb 2013 20:57:00
EZID:	http://n2t.net/ark:/65665/35e81ebee-879b-44a4-93d0-bf6450591066



Close

... but it requires great efforts and resources

Crowdsourcing and Natural History Museums

Public participation in digitization projects can make the difference.



Biodiversity Information Science and Standards 2: e25410
doi: 10.3897/biss.2.25410



Conference Abstract

Crowdsourcing, is it a good option for your collection digitization?

Quentin Groom[‡], Ann Bogaerts[‡], Sofie De Smedt[‡], Sarah Phillips[§]

Biodiversity through O

ELIZABETH R. ELLWOOD, BETTY A. DUNCKEL, GREG NEWMAN, SARAH NEWMAN, DEBORAH PAUL, GREG RICHARDSON, AND AUSTIN R. MAST

JULIE M. ALLEN, JASON H. BEST, RICHARD CARTER, SIMON CHAGNOUX, ROBERT COSTELLO, MICHAEL W. DENSLOW, ERICA R. KRIMMEL, RAPHAEL LAFRANCE, JOANN LACEY MARTINEC, ANDREW N. MILLER, JAMIE MINNAERT-GROTE, THOMAS NASH, PETER OBOYSKI, DEBORAH L. PAUL, KATELIN D. PEARSON, N. DEAN PENTCHEFF, MARI A. ROBERTS, CARRIE E. SELTZER, PAMELA S. SOLTIS, RHIANNON STEPHENS, PATRICK W. SWEENEY, MATT VON KONRAT, ADAM WALL, REGINA WETZER, CHARLES ZIMMERMAN, AND AUSTIN R. MAST

Professional Biologist

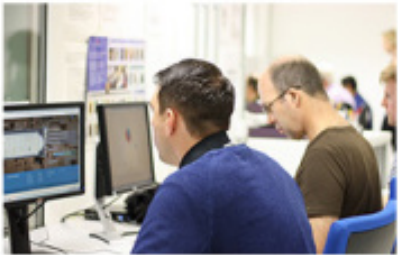
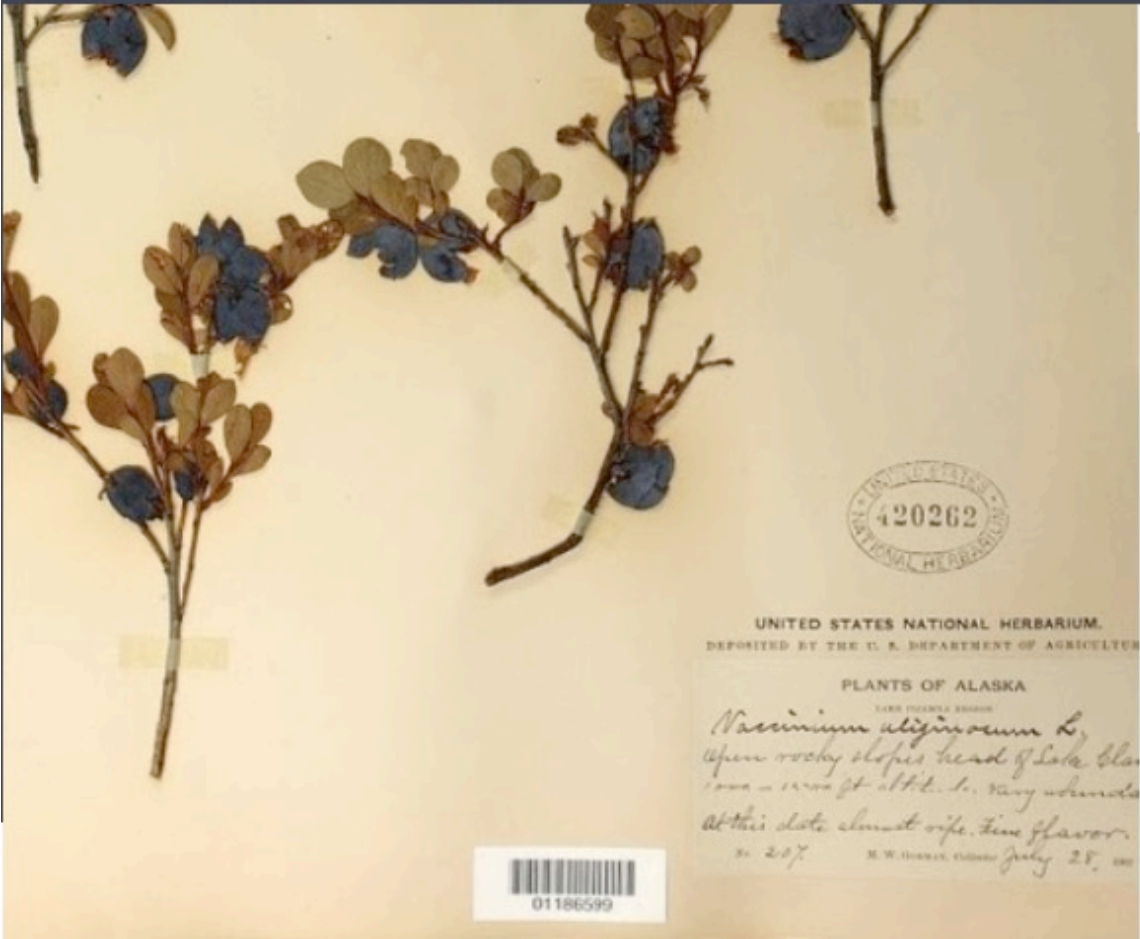
t for Digitizing Bio): The nity's Citizen-Calendar



Crowdsourcing and Natural History Museums

As a result, crowdsourcing is becoming an increasingly popular form of digitization.

Smithsonian turns to crowdsourcing for massive digitization project



2,000+ volunteers helped us capture data from over 15,000 specimens



Les herbonautes

L'herbier numérique collaboratif citoyen

The use of Natural History Collections is an emerging topic in the education of high school students in advanced countries.

Revolutionizing the Use of Natural History Collections in Education

Karen E. Powers¹, L. Alan Prather², Joseph A. Cook³, James Woolley⁴, Henry L. Bart, Jr.⁵, Anna K. Monfils⁶, and Petra Sierwald⁷

Science Education Review, 13(2), 2014

Professional Biologist

Natural History Collections as Emerging Resources for Innovative Education

JOSEPH A. COOK, SCOTT V. EDWARDS, EILEEN A. LACEY, ROBERT P. GURALNICK, PAMELA S. SOLTIS, DOUGLAS E. SOLTIS, COREY K. WELCH, KAYCE C. BELL, KURT E. GALBREATH, CHRISTOPHER HIMES, JULIE M. ALLEN, TRACY A. HEATH, ANA C. CARNAVAL, KIMBERLY L. COOPER, MARK LIU, JAMES HANKEN, AND STEFANIE ICKERT-BOND

«Occhio alle Penne!»

Thanks to a grant from Regione Lazio supporting RESINA (the system of Natural History Museums of the Regione Lazio), the Civic Museum of Zoology in Rome, with the help of Nature Lab Association, designed the pilot project “*Occhio alle penne!*” with the aim of **testing the crowdsourcing approach for digitization of a Natural History Collection** (for the first time in Italy, to the best of our knowledge) **in a school context**.

We devoted special care in selecting the collection to be used, choosing:

A collection of animals easy to observe in order to stimulate the users in watching the current fauna;

An historical collection: to compare present and past fauna;

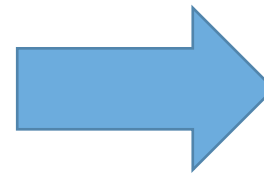
A collection from local area to get to the users an idea about the environmental changes over time.

The selected collection was the "Aldobrandini Collection", a collection of birds from the Campagna Romana, collected in 1850-1900.



«Occhio alle Penne!»: the implementation of the project

We held meetings with some teachers from high schools in and around Rome, we presented them the project, listened to their suggestions and asked them to participate. **Four schools (six classes) have joined the project.**



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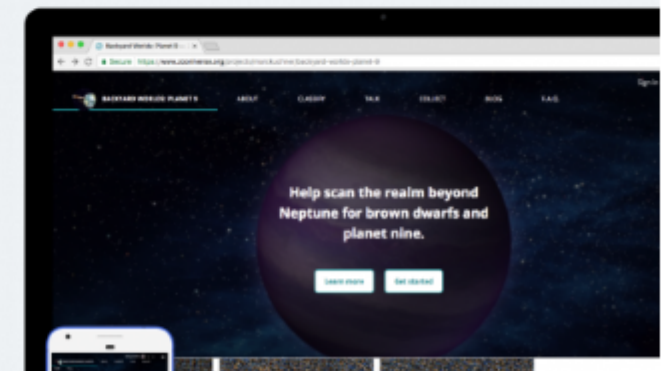
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«Occhio alle Penne!»: the implementation of the project



TASK

Numero di catalogo "storico"

NEED SOME HELP WITH THIS TASK?

Numero di catalogo "MCZRU"

NEED SOME HELP WITH THIS TASK?

Nome scientifico completo (nome latino)

NEED SOME HELP WITH THIS TASK?

Nome comune (nome italiano)

NEED SOME HELP WITH THIS TASK?

Età

Adulto (ad.)

Subadulto

Giovane

Non specificato

TUTORIAL

Sesso

Maschio

Femmina

Sesso non specificato

NEED SOME HELP WITH THIS TASK?

Next →

NEED SOME HELP WITH THIS TASK?

Riferimenti temporali

NEED SOME HELP WITH THIS TASK?

Note

NEED SOME HELP WITH THIS TASK?

Back

Done

«Occhio alle Penne!»: support material for activities

La Campagna Romana



Immagine da: <http://mapio.net/pic/p-87018138/>

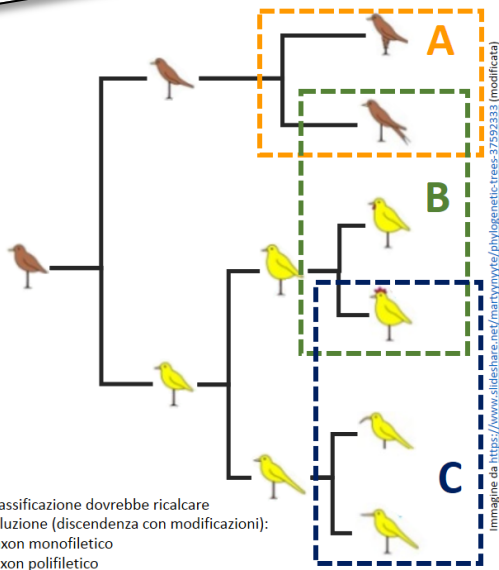
tali didattici prodotti nell'ambito di "OCCHIO ALLE PENNE", progetto pilota per la digitalizzazione di una collezione ornitologica storica del Museo Civico di Zoologia di

...dagli anni '60 del 1900 è venuta però sempre più imponendosi l'esigenza di associare un significato strettamente evolutivo ai gruppi sistematici (chiamati *taxa*) ovvero di utilizzare come criterio per la loro composizione esclusivamente quello di una comune discendenza evolutiva.

Ogni taxon dovrebbe essere *monofiletico* contenendo **tutti e soli** i discendenti di un antenato comune.

Un taxon che non comprenda **tutti** i discendenti di un comune antenato è detto *parafiletico*, un taxon che comprenda i discendenti di antenati diversi è detto *polifiletico*.

Il sistema nomenclaturale, pur non indenne da traversie storiche e innovazioni come l'introduzione di livelli intermedi quali la **famiglia** (tra genere e ordine), il **phylum** (tra classe e regno) e, più recentemente, il **dominio** (al di sopra del regno) è restato fondamentalmente simile a quello originario.



La classificazione dovrebbe ricalcare l'evoluzione (discendenza con modificazioni):
A: Taxon monofiletico
B: Taxon polifiletico
C: Taxon parafiletico



La Campagna Romana è un territorio pianeggiante con quote inferiori ai 200 m, solcato da un fitto reticolo di fossi che dai rilievi scendono talvolta direttamente verso il mare oppure, più spesso, verso i due fiumi che l'attraversano: il Tevere e l'Aniene.

- a nord dai rilievi della Tolfa e dei monti Sabatini;
- a est dal sistema dei monti Tiburtini e Prenestini e dall'edificio vulcanico del Vulcano Laziale;
- a sud est la Campagna Romana continua fino ad Anzio e al corso dei fiumi Tevere e Aniene;
- a ovest dal mar Tirreno.

La Nomenclatura Scientifica



Carl von Linné; Immagine da: http://www.britishmuseum.org/research/collection_object_details/collection_object_details?collection_id=233093001&object_id=233093001

tali didattici prodotti nell'ambito di "OCCHIO ALLE PENNE", progetto pilota per la digitalizzazione di una collezione ornitologica storica del Museo Civico di Zoologia di

Join to the project: <http://www.museiresina.it/partecipa/>



PROGETTO COLLEZIONI

Aiuta i ricercatori a digitalizzare i dati
dei cartellini delle collezioni dei musei!

IL TUO MUSEO

Condividi nuovi materiali sui musei
RESINA e sulla natura del Lazio,
potranno essere utili
ai musei e ai tanti visitatori!

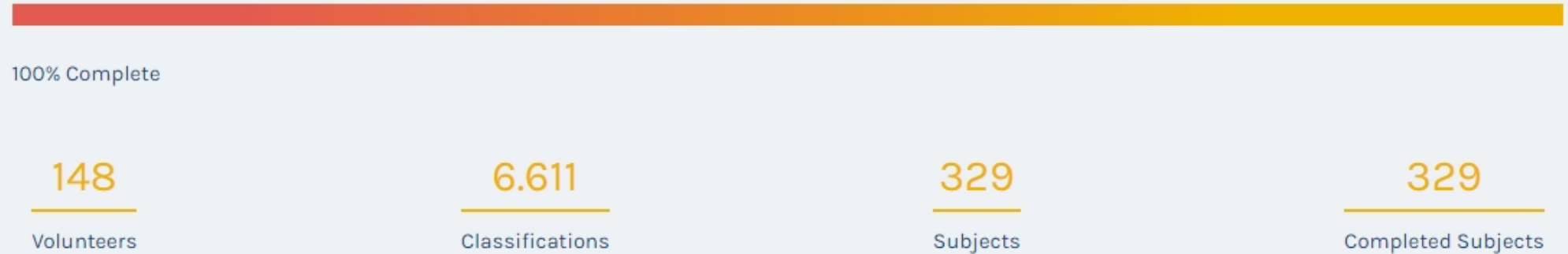


The project started for the schools at the end of November 2017; in March 2018 it was opened to all the volunteers

«Occhio alle Penne!»: results

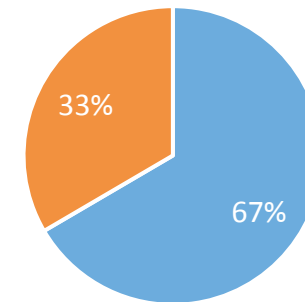
At the end of May 2018 the project was finished: the collection was completely digitalized!

OCCHIO ALLE PENNE! STATISTICS



- 259 volunteers participated; 148 of which registered; 82 on 148 were students.
- Because of the high probability of digitization errors, we have imposed that each specimen be digitized by different users randomly up to 20 times so as to use for each field, the maximum consensus value.

Classifications



■ Students ■ Others

«Occhio alle Penne!»: Museum follow-up

The Museum have obtained the complete digitization of a collection DwC/ABCD compliant: after a final check on the nomenclature data are ready to be published and used at international level.

	image_name [PK] character varying(50)	numero_cat character va	ncs_recno integer	numero characte	ncmzru_recno integer	nome_scientifico_completo character varying(50)	nomesci_recno integer	nome_comune character varying(50)	nome_co integer	eta character	eta_recno integer	Sesso character
55	4395_resized.jpg	4395	17	1891	11	Corvus f. frugilegus	13	Corvo	19		19	Sesso non
56	4398_resized.jpg	4398	25	1890	7	Corvus c. cornix	22	Cornacchia cenerina	23		27	Sesso non
57	4400_resized.jpg	4400	17	1893	19	Corvus monedula spermologus	16	Taccola	19		19	Sesso non
58	4401_resized.jpg	4401	18	1892	18	Corvus monedula spermologus	13	Taccola	16		18	Sesso non
59	4405_resized.jpg	4405	19	1888	9	Garrulus g. glandarius	16	Ghiandaia	19		19	Sesso non
60	4411_resized.jpg	4411	20	1897	20	Sturnus v. vulgaris	15	Storno	20		20	Maschio
61	4413_resized.jpg	4413	19	1896	18	Sturnus v. vulgaris	16	Storno	12		19	Sesso non
62	4414_resized.jpg	4414	20	1898	15	Sturnus v. vulgaris	16	Storno	20		20	Maschio
63	4415_resized.jpg	4415	20	1894	17	Pastor roseus	18	Storno roseo	20		20	Maschio
64	4418_resized.jpg	4418	19	1895	16	Pastor roseus	18	Storno roseo	19		19	Sesso non
65	4420_resized.jpg	4420	18	1880	18	Oriolus o. oriolus	13	Rigogolo	16		18	Maschio

«Occhio alle Penne!»: teacher follow-up

At the end of the project we asked the five teachers who participated, to answer nine questions about the appreciation, interest, strengths and weaknesses of the project and to suggest improvements on any part.

Here we reported the most interesting answers.:

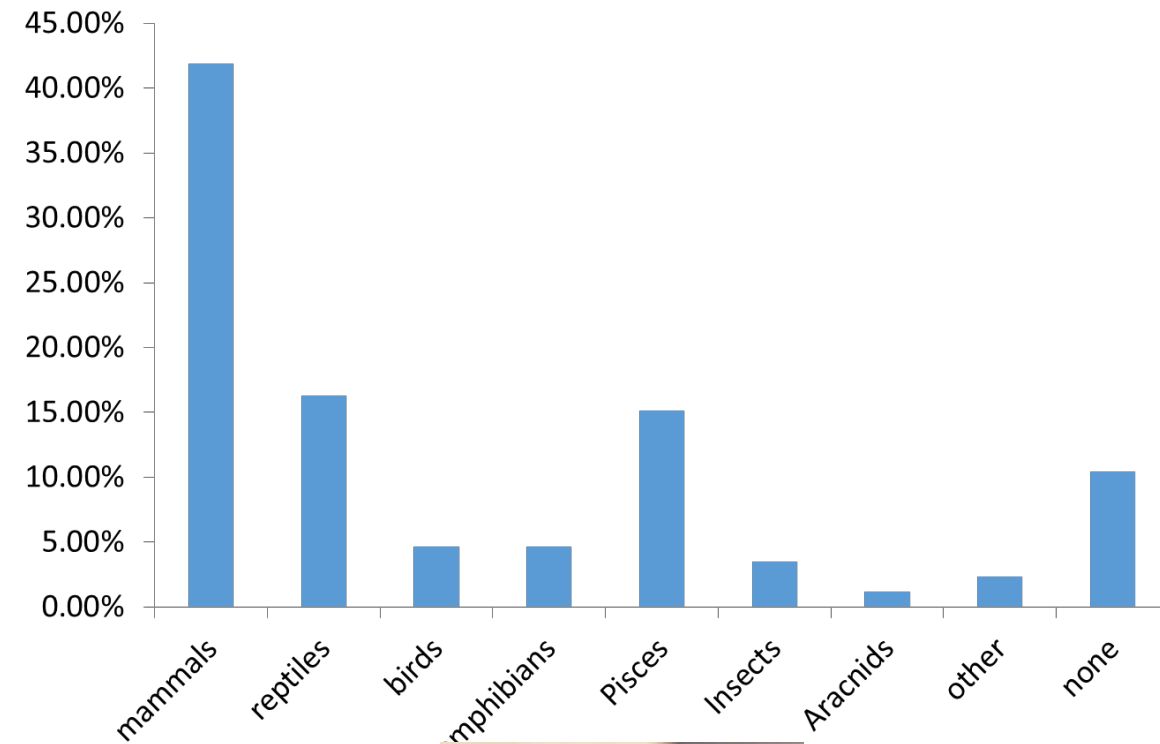
1. Strengths: knowledge of citizen science activities; involvements of the students in scientific activities; combination of visual approach with nomenclature; possibility to work in the classroom or at home without deadlines; possibility to check; possibility of practically experiencing what has been learned in class; active participation of the students that enhance their study motivation. Weakness: difficulty in fully working the project due to lack of time; the project was outside of school-to-work apprenticeships.
2. The students acquired powers of observation and self organization; awareness about the scientific activity in the museums; and the importance of the collections; practical knowledge about biodiversity and nomenclature.
3. Plan the project inside school-to-work apprenticeships; repeat and enhance the initiative also with different topics; repeat the initiative with practical activities at the museums or at school.

«Occhio alle Penne!»: students follow-up

Two questionnaires (one for entry and one after the end of the project) were submitted to the students.
The students had to answer the following six questions, here we reported the main interesting answers.

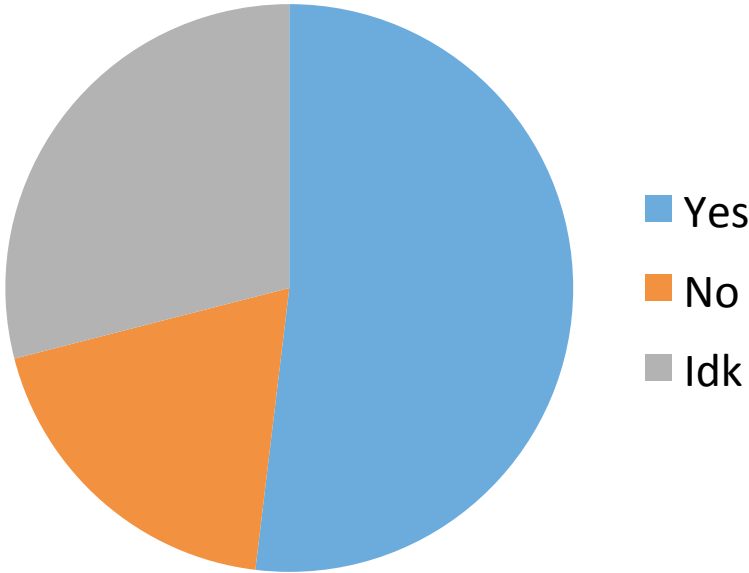
- Would you like to deepen your knowledge of animals?
Yes, 75.57%; No, 9.16%; I do not know, 15.27%.

- Which animal groups are you most interested in?
65.65% of students are interested in a single group of animals



Question 9 - Would you like to work together with the people who work in a zoological museum?

Yes	No	Idk	students
68	25	38	131
51.91%	19.08%	29.01%	



«Occhio alle Penne!»: what we learned

Also in Italy, crowdsourcing is a useful method to facilitate the digitization of Museum collections.

Crowdsourcing initiatives can be planned for the school environment.

Crowdsourcing can support teaching by providing teachers and students with opportunities and motivations for in-depth study and cross-cutting between teaching topics.

Crowdsourcing stimulates teachers, students and researchers to work collaboratively.

Crowdsourcing can be a method by which students and teachers approach other Citizen Science initiatives.

But...

As in any other citizen science initiative, crowdsourcing requires great capacity for understanding, kindness and sensitivity on the part of the organizers: **they can not only propose a theme and start the initiative** but must assist and stimulate the participants by collaborating with them on a plan of equality.

Acknowledgements

We would like to thank all the participants who have contributed to this project, particularly:

Prof. Paolo Bonavita e gli studenti delle classi 2F e 2G dell’ Istituto Tecnico e Liceo Scientifico B. Pascal Roma.

Prof.ssa Maria Lucia Menichilli e gli studenti della classe 3B del Liceo Classico e linguistico Cicerone, Frascati.

Prof.ssa Claudia Moretti e gli studenti delle classi 2A e 2B del Liceo Scientifico Socrate, Roma.

Prof.ssa Francesca Porciello e gli studenti delle classi 2Tecnologico dell’Istituto Tecnico Commerciale e Geometri Buonarroti, Frascati e inoltre gli utenti anonimi e non:

0101, 2Fm.b., andrealtieri, apic, bapl, beablauth, berkants, Brigitt, BrunoB, Chiara_Fra, Cinghio, claudiascarlata2, Claystarfire, costa_77, cristian.gruppi, Crucco, cyboteur, delcros, Dina72, Edoxx, ElisabethB, ElPedro, Eretico, fabio.cianferoni, flavs, francebattaglia02, Fuggiola, Giuseppe_Ruggiero, hartland, Jf2002, jikrov923, jmcnichols, LadyCocca, Leofbrj, lorenzot., Mamiani_3G.22, martinacesaretti, martinals, martinamagris, MEinaudi, Mrzcasali, mZakk, nevilos, Noharr, nonnaanna, not-logged-in-00c0ca1188a34ae60eab, not-logged-in-00ca34cc6c4053222bf8, not-logged-in-0341f27c902be339dbec, not-logged-in-08ebaa7db86d4ffeed49, not-logged-in-0b803f2efacee7875eab, not-logged-in-0d20723c83634796e58f, not-logged-in-0f6a4dd5aafd2ccc11a8, not-logged-in-10f19458a351a2ded115, not-logged-in-1284ad34d5a248427e1f, not-logged-in-1386c1acc50bf11a861c, not-logged-in-1600cbfa6c695a09a4ed, not-logged-in-16c30ac69ed50a6eead5, not-logged-in-16fb38b4c40ecb0e5599, not-logged-in-18118911011252f619f7, not-logged-in-1ac1b05e9e99e726fe6f, not-logged-in-1c110a841cec62891d3f, not-logged-in-1c30d9e11e6de7ad6fc9, not-logged-in-1df11fc98546b8a1368a, not-logged-in-1eaed80d99c261a418d6, not-logged-in-1f03825dd9651d9a8527, not-logged-in-1f7c34a34b507c991c1b, not-logged-in-23ac7119894aef068f28, not-logged-in-25297b93d872c180126f, not-logged-in-2bda39407efc6f43d4c1, not-logged-in-2dd3a35d81636419b741, not-logged-in-2ddd8d1aa9e6eb2ff269, not-logged-in-360cab2dcae7ec1467de, not-logged-in-3681ad621e6c8f39e3ef, not-logged-in-3a9ff182b861a671a51e, not-logged-in-3ba968c6342f9bf4a045, not-logged-in-3be1fa8bf76a03646e63, not-logged-in-3ef3f5adc68a4b1c2d5c, not-logged-in-40632c1c6661a3ec538b, not-logged-in-411319681ea4fdcc19ed, not-logged-in-43c1d1f0e32a871a1474, not-logged-in-43c3ee22bc62c13a8666, not-logged-in-44000677326bc7d07f5f, not-logged-in-4441a753a37377ae7f44, not-logged-in-4789b5ebb2bd12c4628d, not-logged-in-47c8cbb09bcd58544fa6, not-logged-in-4977b4d4ffa7c4dc9474, not-logged-in-49e49f39cfd22f197939, not-logged-in-50a2fc63d2a259c53c03, not-logged-in-5615bc8bee2eddc6cefd, not-logged-in-56d3b9f5b860bd031a01, not-logged-in-5776f449b43361cde649, not-logged-in-57b2338fab327ba0e90, not-logged-in-5c73a7bb84451a9ef06e, not-logged-in-5e458c1f0b07a25701be, not-logged-in-60478af719cc421c4b0b, not-logged-in-618ea6c6908d0ff050d1, not-logged-in-630081d8c91b37195663, not-logged-in-6643cda310556eedcaa2, not-logged-in-669502025d7c0c65288e, not-logged-in-6816fbb914f974906804, not-logged-in-6b4d5273cbf4031d5b4a, not-logged-in-6de67ba805c8760b0d78, not-logged-in-6fa65618ce0db69a8db7, not-logged-in-72b9b4790d5adc7b2b36, not-logged-in-733c1a0f1d41cbfd9365, not-logged-in-7829e97f10fe338ae5de, not-logged-in-79fb7b6fe9b3e0293d4f, not-logged-in-81a8758cd8c3aa4d0334, not-logged-in-8443673bdb99ab965ad5, not-logged-in-84809ecb10e58d3fefe1, not-logged-in-85a2773ea378bbad60a1, not-logged-in-87d31421700c2de88279, not-logged-in-8d336b80da6d8c103624, not-logged-in-914d2d0c5a811345493e, not-logged-in-95e4c80a2521fbe86ba8, not-logged-in-97be20a855ebe8808186, not-logged-in-9b5411f9e0bf7ae8afbd, not-logged-in-9d17310a73253f086428, not-logged-in-9e7d075f14659925816d, not-logged-in-9f798141b1627513e50c, not-logged-in-a37e418357d93f64e84a, not-logged-in-a43616a2c3c6e7bb740a, not-logged-in-a8acb35dcb357f8c8844, not-logged-in-aa193ad91bf7640e356b, not-logged-in-adff84792ba7de26e5c0, not-logged-in-b067a96d763a1e1ca338, not-logged-in-b28f47e400ba387c5c21, not-logged-in-b3127acc6a12d75185ad, not-logged-in-b6056d71324ba2bd70b9, not-logged-in-b7461eac58b1dc12e927, not-logged-in-b8d3c464f7cf4c011b33, not-logged-in-bda22389d38a55fe8ca9, not-logged-in-c6f653d3061320561e90, not-logged-in-c9c15766d04824528ed2, not-logged-in-cbf181f70eb2ebd33565, not-logged-in-ce448e5c8b38b0b5ec6c, not-logged-in-ce49d82277c2d6f37961, not-logged-in-d640da55e693c883ef4d, not-logged-in-d6bb62be39ae7f5b4e94, not-logged-in-d766f904ce02795f4e9b, not-logged-in-db4fa80ec59e06056bb5, not-logged-in-df2f25891fbfd6339f3c, not-logged-in-e586050e6ab7d76838e1, not-logged-in-e614af7f7be4887c9b466, not-logged-in-e69d9e16b85ccd71ccee, not-logged-in-e7f1c2c2eacae8bd83c7a, not-logged-in-ed03efee9a4cbe52c1b5, not-logged-in-ed11b85feecadadeef2e, not-logged-in-ed252b8af8f3b3afe76d, not-logged-in-ef042cc6db60b127e134, not-logged-in-f2c6e4d8e515b9e22159, not-logged-in-f6787ed4508c9191d506, not-logged-in-f755ec4574a76fda319b, not-logged-in-f7ac56f33984eaa0f778, not-logged-in-f8fbc5b72275019ad068, not-logged-in-fbfb24be385649a46c5c, not-logged-in-fc9e5f00bbb3d04bb5e6, paolo.bonavita, propriome, racjohn, RFaa, Scrate2B_St16, simoneduca, SMDC, Sotigan, spugnetta56, Sputnik16, St11, susanne238, sybilvane, tag2015, Thel, Tomi9, ToniF, Trillix, williamtylerconway,

I think you'll be
delightfully surprised
by the quality of my work
on this assignment.
I crowdsourced it.

