**DNA Barcoding in Norfolk**

**During 2022**. A small team within the NFSG have been developing the skills to use recently acquired DNA barcoding equipment. The kit enables us to amplify small regions of fungal DNA that can then be sequenced. These sequences can be compared with public databases of previously sequenced and identified fungal specimens. This opens up a new dimension in our ability to potentially identify fungal specimens, and we have already revealed some interesting results.

**Current**. We are now in a position to invite members to submit fungal specimens for consideration for barcoding. If you think you have a suitable candidate(s), there is a form at the end of this document for you to fill in on your computer and attach this complete document to your email with your request. Please email the completed form to the DNA group at norfolkfungus@gmail.com with the subject DNA request. Please do NOT send any samples before contacting the team and being invited to submit them.

**Costs.** To cover the cost of DNA work, some grant funding is available for investigations likely to contribute significantly to the recording of Norfolk's biodiversity. Currently our costs amount to about £10 per sample ‘in-house’ compared to about £20 per sample if using a commercial facility. Donations to the NFSG (via bank transfer, see below) to offset our costs would be appreciated but are not necessary. Please note that donations will ***not*** influence the decision to sequence candidates.

**Specimen collecting.** Contamination from other fungal bodies should be avoided and collected specimens should ideally be carried in individual containers.

**Drying and Freezing.** The way in which a specimen is dried is a key component to a successful outcome. Further information can be found on the NFSG website [NFSG website](http://www.thenfsg.co.uk/_downloads/DNA%20Submission%20Guidance.pdf).

**Storage.** This is also an important factor with regards to successful DNA sequencing, specimens that have been badly stored are far less likely to produce a viable sequence. Further information can be found on the NFSG website [NFSG website](http://www.thenfsg.co.uk/_downloads/DNA%20Submission%20Guidance.pdf).

**Labelling**. If a significant number of specimens are being kept, then it is worthwhile creating an inventory and assigning ID codes to each specimen, this same number being used for images and notes that relate to the collection. The DNA team ID code system is: Date the specimen found, in YYYY.MM.DD format, followed by an underscore and a two digit number to distinguish it from other items from that collection date, this is followed by an underscore and the initials of the person putting it forward for DNA barcode sequencing, ending with an underscore and the putative name of the specimen (which may be to genus only), e.g. *2016.10.15\_01\_YM\_Ampuloclitocybe sp.*

**Requesting barcoding.** Upon receipt of the completed DNA request form the group will look at our situation with regards to capacity and the suitability of your specimen for our current barcoding programme. If the group feels that the specimen is a suitable candidate you will be invited to send it to us. We will keep you updated throughout the process. Specimens may not be returned so you may wish to retain a small amount of material. You agree to all information relevant to the specimen being made public and any sequence(s) may be uploaded to public databases.

**Time scale & results.** Sample preparation, DNA extraction, PCR and sequencing all take a considerable time and it may be several weeks or months before we have enough material to send off for sequencing. The analysis of the returned sequences also requires a significant amount of effort so several months may elapse between the submission of material and a result (which may or may not be conclusive to any degree of certainty and may involve consulting other people and organisations). You will be notified of the results as soon as we have completed the process. The DNA team will keep you updated regarding the current progress regarding your specimen.

**Our thanks go to:** Darwin Tree of Life (via the Enabling Connections fund) together with support from the Earlham Institute’s Barcoding the Broads initiative for providing the necessary funds for the initial purchase of equipment and reagents, together with sequencing at Genewiz.

British Mycological Society (DNA Barcoding Project) which is providing funding for sequencing at Aberystwyth University.

Sam Rowe (Earlham Institute) & Brian Douglas (Bento Bioworks, formerly RBG Kew Mycology team) for running various workshops and providing endless practical advice.

Will Fitch and The Ted Ellis Trust for the extensive use of their workshop facilities.

**Bank Account Details:**
Account Name: Norfolk Fungus Study Group
Sort Code: 201720
A/c #: 13923258
Reference: ‘Your Surname’ - DNA
Please email the treasurer Jenny Kelly (jenny@csanderling.org.uk) to let her know you’ve made a transfer.

*NFSG DNA Team March 2024*

**NFSG DNA barcoding request form**

*Please type your data into this form, it will expand as you add information, and email completed form to* norfolkfungus@gmail.com

*(Items marked with \* are essential information, all others are optional,*

*having more information will greatly assist us with the process of prioritising specimens to barcode)*

**\* Provisional name of the fungus** *(what you think it might be)*:

**\* Your name, and names of finder and identifiers if not yourself:**

**\* Date found:**

**\* Location name:**

**\* Grid reference:**

**\* Has a record of this find been added to the NFSG spreadsheet or sent to the county recorder?**

**Additional information regarding fungus e.g. habitat, substrate, associated organism, growth habit, smell, colour etc. Also include any recorded measurements of fresh fruitbody.**

**\* Do you have photographs of the specimen particularly those showing important features that support your provisional ID? Yes / No (if yes please attach these to the DNA request email).**

**Please describe and give measurements of spores, cystidia etc.**

**\* Do you have photomicrographs or drawings showing important microscopic features that support your provisional ID Yes / No (if yes please attach these to email request).**

**\* What resources or people helped you to come to the provisional name given.**

**\* Describe the condition of the specimen and the methods used to preserve and store the specimen.**

**\* Why do you think this is a good candidate for DNA? e.g. possibly new for Norfolk/UK, puzzling specimens, cryptic species etc.**